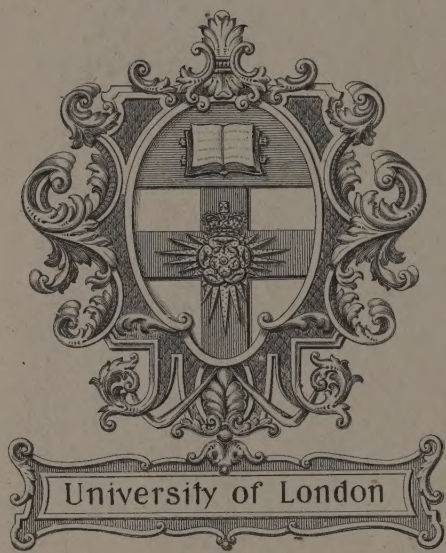
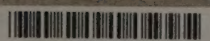






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SIXTY-THREE VOLUMES.

— (42.) —

COMMERCIAL REPORTS—*continued.*

Session

31 January 1893 — 5 March 1894.

V O L. XCI.

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1893-94.

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REFERENCE TO PREVIOUS REPORT, Miscellaneous Series No. 173.

*Issued during the Recess and Presented to both Houses of Parliament
by Command of Her Majesty.*

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ITALY.
FLORENCE.

Consul-General Colnaghi to the Earl of Rosebery.

My Lord, Florence, September 13, 1892.
I HAVE the honour to transmit to your Lordship, herewith enclosed, a Report on the Yield of Cocoons in Italy for the year 1891, which has been drawn up by Mr. Vice-Consul Cassinis, of Turin.
I have annexed to it a Table showing the general results of the Yield of Cocoons in 1890, on which, owing to unforeseen circumstances, I was last year unable to report.
I have, &c.
(Signed) D. E. COLNAGHI.

Report on the Yield of Cocoons in Italy for the Years 1890 and 1891.

ABSTRACT of Contents.

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Grain—	
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Yield in silk—	
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Stock; season of 1891-92; prices; exportation	5
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Yield of cocoons for 1890; table	8

The approximative quantity of silkworm grain that was Grain.
cultivated in Italy in 1891 is estimated as under:—
(1395) A 2

The results of the breeding were satisfactory, an average of 3.17 myriagrams of cocoons per ounce of grain being obtained, only slightly below the average of 1890, 3.21 myriagrams, and greatly above that of 1889 which did not exceed 2.73 myriagrams of cocoons per ounce of grain. The best results were obtained from the good cross breeds (white and yellow), which yielded 3.50 myriagrams per ounce; then by the pure yellow with 3.35 myriagrams. The minimum product was given by the green and "verdino" breeds, which did not exceed an average of 2.45 myriagrams per ounce.

The price of the grain averaged from 10 lire to 14 lire per ounce for the pure native and foreign (European) cellular preparations, and for the native yellow crossed with the white Chinese breed; from 8 lire to 10 lire for the green, and from 6 lire to 8 lire for the grain of all the qualities reproduced on the industrial, i.e., non-cellular, system.

The yield of cocoons may be approximatively stated, in round numbers, as under:—

	Myriagrams.
Piedmont	735,000
Lombardy	1,300,000
Venetia	720,000
Liguria	20,000
Emilia	265,000
Marches and Umbria	201,000
Tuscany	202,000
Latium	6,500
Southern Italy	248,000
Sicily	22,000
Sardinia	200
Total	3,719,700
	(81,982,188 lbs.)

As stated above, this estimate can be considered as approximative only. On the one hand, part of the cultivators do not carry their cocoons to the public markets, while, on the other, parcels of cocoons, sold and registered on one market, are often rebought and sold several times by dealers in fresh cocoons on different markets.

The quality of the yield was fair, and the cocoons were certainly superior to those produced in 1890. Approximately they may be classed according to their relative quantities as follows:—

Cocoons—	Myriagrams.
Yellow and white, European	2,056,700
" cross breeds, European	1,183,000
Asiatic and other reproductions—	
Green, white, and "Verdini"	450,000
Various mixed and unknown	30,000
Total	3,719,700

Generally the number of double cocoons met with was less than in the previous year, as the cultivators are beginning to apply (1395)

the cellular system to the production of grain on a more extended scale than has hitherto been the case.

Result at the
mills.

Quantity of
silk produced.

The cocoons gave fairly good results at the mills, as they were generally healthy, and those affected by *calcino* (*muscardine*) were few in number. The total quantity of silk produced was, however, less than in 1890—in the first place, because the mulberry leaves, having attained higher rates, were given to the worms in reduced quantity, and were gathered before their full development and without due selection; and, secondly, from the rarity of cases of “*calcino*,” a malady which dries up the worm and reduces its weight as compared with silk.

It may be calculated that on an average 10·90 kilos. to 11·75 kilos. of yellow cocoons yielded 1 kilo. of raw silk. In Piedmont 11 kilos. sufficed, while in South-Italy and in Lombardy above 12 kilos. were required. In Tuscany 11·50 kilos. to 11·75 kilos. yielded 1 kilo. of silk, while in the Romagna the quantity oscillated between 19·90 kilos. and 11·25 kilos. for first-class cocoons.

Of the crossed yellow and white cocoons 11½ kilos. to 11¾ kilos. were required to produce 1 kilo. of silk. Of the Japanese green about 13½ kilos. on an average, while of the white the quantity required varied from 12 kilos. to 15·50 kilos., with an average of about 14¼ kilos.

In 1891 the results of the silk campaign which was then closing did not induce buyers to contract for cocoons in the months of April and May, as in other years. Even at the end of this latter month buyers were still reluctant on account of the favourable notices of the probable large yield in the far East, and of the low prices, from 26 lire to 30 lire per myriagram, that were being given in Spain.

On the other hand, the breeders, who had paid for the mulberry leaves at high rates, resented the low offers of the buyers, and transactions became difficult. A few special Lombard parcels were, however, purchased at a minimum price of 29·30 lire per myriagram, with a premium of from 2 lire to 4 lire per myriagram on consignment.

The markets opened a few days later than usual on the second half of June, and in their ordinary respective order of time, *i.e.*, the Tuscans, the lower Romagnole, and the southern markets first, followed by the Lombard, those situated in the upper part of the Romagna and the Venetian, and, lastly, the Piedmontese, which closed, at Cuneo, only on July 14.

Prices.

Prices started at 28·29 lire per myriagram, and, notwithstanding a general coolness on the part of the spinners, there was a tendency to a rise from the continuous arrival of fresh speculators, who were impressed by the diminution of the French yield by hearing that a certain number of cultivators had thrown away the young worms owing to the scarcity of the mulberry leaves, as well as by some sales of silk that had come to public notice.

In this manner prices rose for yellow cocoons to 34·36 lire, but, the silk business stopping and it was about nil, the continued

calm on the part of the spinners was successful in keeping back prices, which closed rather more weakly at 31·34 lire per myriagram. It is impossible to establish, except very approximately, the average prices paid, because exact statistics either of the different breeds or of cocoons freed from doubles sold on the markets are not kept, nor are the superior distinguished from the common qualities. Moreover, the statistics are not everywhere drawn up with the same criteria, on some markets certain qualities being improperly united.

With the above reservation it may be said, on an average, that—

							Lire	c.
Yellow superior qualities reached per myriagram	..						32	50
" common qualities	..	..	..	..	..	..	30	50
Green superior qualities	..	..	..	..	..	..	26	00
" common	..	..	..	..	..	..	22	50

The demand for inferior cocoons at prices but little below those paid for the superior qualities, taking into consideration their yield in silk, and this in relation to the difficulty of selling classic silks at comparatively higher prices to the second class qualities, is worthy of observation.

Silk Trade from June, 1891, to June, 1892.

It would be very difficult to draw up exact statistics of the Silk trade. amount of stock on hand with which the season of 1891-92 opened, for the private stores were not low enough to enable reasonable deductions to be made only from the returns of the silk deposited in the various branches of the National and in other banks which also make advances on this article, nor can any idea be given of the quantity of silk, forwarded on consignment abroad, that still remained unsold.

On the other hand, it may be safely asserted that the stock was not heavy, and was certainly greatly inferior to the balance remaining at the end of the preceding season.

Beside the above stock, the current campaign had to provide for the consumption of the yield of 1891, which, taking into calculation the data previously given in this report, both as to the quantity of cocoons produced and to their yield at the mills, may be calculated to have amounted to 3,050,000 kilos. (683,200 lbs.).

The months of August and September were critical, and, notwithstanding that the demand on the part of manufacturers was fairly good, it was not possible to do a large business or to obtain the least increase in price—indeed, during the whole season, prices fell continuously abroad, and were maintained in Italy only by the help of the Exchange, which gradually rose, though not without oscillations, from 0·75 to nearly 5 per cent. There were, indeed, attempts at a rise in October and in March,

incited by two speculations in cocoons; but these only served to show a great poverty of stock, while the general financial crisis, rendering sellers timid and anxious to realise, frustrated the hopes that any improvement could be effected, and this notwithstanding that the demand and the wants of manufacturers were largely above the offers of holders.

During the whole year manufacturers were active, not only the old stock but the new yield being used up, and such was the mania for selling on the part of the producers that many lots were sold on speculation (*allo scoperto*), and a large number of spinners, having first lost from over confidence, met with further losses from exaggerated alarm, and were compelled to purchase cocoons at rates comparatively higher than those for which, in anticipation of a further fall, they had previously disposed of their silk.

The end of the season was reached in May without cocoons, and with an exhausted stock of silk, so that the greater number of orders for prompt delivery could not be complied with. For the small remnant in hand, however, and for silk for future delivery (*a consegna*) the end of May was very active, and showed a much better position of affairs than the same period in 1891, with a great desire on the part of manufacturers to secure silk in expectation of further orders.

Prices.

The prices oscillated between the following limits:—

Limits.	Per Kilogramme.	
	Lire c.	Lire c.
Raw silk—		
Yellow and green, extra classical, b.n., 7/8, 8/10, 13/15	44 00	to 47 00
60/80 Tavelle, classical, from 8/10 to 14/16	41 00	44 00
Current quality of filatures from 9/11 to 10/14 ..	38 40	41 00
Mixed qualities of "flandine," 14/18.. .. .	35 00	38 00
Mazzami, 14/22.. .. .	28 00	32 50
Thrown silk—		
Tram 24/30 current qualities, throwing of classical mills	43 00	45 00
30/50 current qualities, throwing of classical mills ..	38 00	40 00
30/50 " " secondary mills	34 00	38 00
Orgazine, yellow and green, 20, 24, classical	47 25	48 50
Yellow and green, 18, 20, classical	48 00	50 00
" " 15/17 to 17/19, classical	49 00	51 00
" " second qualities	From 1 lire to 2 lire less	

Exportation

In 1891 Switzerland was again the most important importer of Italian thrown silks; America and France of raw silk. The Rhenish factories worked but little, their imports of silk stuffs to the United States having greatly diminished on account of the Silver Bill. England, continuing to substitute Asiatic for Italian silk, proved but a poor customer to this country; Austria

bought little, and, as regards Russia, the importation was not in excess of the average.

TABLE OF WEIGHTS AND MEASURES.

1 kilogram	= 2.204 lbs. avoirdupois.
1 myriagram	= 22.04 "

The average rate of exchange oscillated considerably during the period referred to in this report. The average may be approximatively taken at about 25 lire 70 c. per 1*l.* sterling.

APPENDIX.

APPROXIMATIVE YIELD of Cocoons within Consular District compared with the Total Yield for the whole of Italy for 1890.

Region.	Approximate Number of Ounces (of 27 Grams) of Grain Cultivated.					Total Quantity of Cocoons obtained from the Grain Cultivated in Kilograms.				
	Pure Breeds, Yellow and White, Italy, France, and Portugal.	Cross Breeds, Whites and Yellow.	Japanese and Chinese Breeds reproduced in Italy, and the Cross Breeds.	Japanese Imported Cards.	Total.	Pure Breeds, Yellow and White, Italy, France, and Portugal.	Cross Breeds, White and Yellow.	Japanese and Chinese Breeds reproduced in Italy, and the Cross Breeds.	Japanese Imported Cards.	Total.
Piedmont	152,244	33,193	44,009	19,667	249,113	3,925,396	775,681	1,242,001	669,799	6,512,877
Lombardy	179,601	207,457	72,193	6,969	466,220	5,682,406	6,727,707	2,283,611	211,071	14,904,796
Venice	174,431	106,631	71,933	4,932	285,997	2,263,686	3,272,118	1,900,737	125,274	13,788,804
Emilia	56,537	23,618	1,833	833	62,821	1,167,878	66,718	66,718	2,996,800	8,460,577
Marche, part of	23,974	2,244	127	27	26,372	1,223,009	118,618	13,715	1,303	2,997,944
Tuscany, part of	33,537	4,170	253	12	37,972	1,575,998	209,922	13,631	412	1,348,764
Consular district	548,163	371,148	189,898	31,380	1,140,589	17,830,640	11,798,836	5,613,869	915,206	38,055,061
Remainder of kingdom	101,377	18,560	6,594	2,311	128,742	3,803,651	642,265	190,833	82,560	4,719,359
Grand total for Italy	649,540	389,708	196,492	33,691	1,269,431	21,634,291	12,438,101	6,704,292	997,766	40,774,410
										38,799,285

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ITALY.

CAGLIARI.

Consul Pernis to the Earl of Rosebery.

My Lord, Cagliari, November 25, 1892.

DURING the past years it has been my custom to transmit, at a certain period, an Annual Report on the Commercial and Industrial Development of the Province of Cagliari, but lately I conceived the idea that in order to render complete the Economical Statistics it was necessary to present with them the Moral Statistics of the country.

I have before now informed Her Majesty's Secretary of State for Foreign Affairs of my intention to carry out that idea in the course of the current year, and now beg to submit for your Lordship's perusal the annexed Report.

I have, &c.
(Signed) E. PERNIS.

Report on the Instruction, Beneficence, and Criminality in the Province of Cagliari.

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Crime and criminals	4

Public Instruction.

Starting with the institutions of the higher class it is to Primary be noted that the province of Cagliari is provided with a schools (1488) A 2

university, in which are taught jurisprudence, medicine, and surgery, with important clinical schools at the civil hospital. The latter is a vast edifice of considerable architectural beauty, is amply endowed by an ever-increasing patrimony, which is constantly being enriched by the legacies and gifts of benevolent citizens, and considering the large number of patients admitted and the care and attention bestowed on them, this hospital would be worthy of any conspicuous town or capital. In referring again to the university, it is necessary to state that besides the above sciences there are taught the physical, mathematical, and natural sciences, philosophy, and literature. There is also a school of pharmacy, a rich and extensive library, a zoological collection, as well as important collections of mineralogy and comparative anatomy, laboratories of human anatomy, chemistry, physics, experimental physiology, and pathological anatomy. The university has also a well-stocked botanical garden.

The university is governed by a rector and an academical council, and each faculty has its own president.

For a long time the said academical council, aided by the council of the province, the municipality of Cagliari, and the local members of Parliament, have strenuously endeavoured to obtain from the Government the concession that this university should be brought to the level of the most important universities of the kingdom.

Secondary
schools.

In speaking of the secondary schools a special notice must be taken of the Royal Lyceum and Gymnasium "Dettori" at Cagliari; of that of San Giuseppe in the same city; and of the gymnasiums at Oristano, Bosa, Tortolì, and Ales. At Cagliari there exists also the Royal Technical Institute ("Pietro Martini"), to which is annexed a nautical school with a practical and useful course for the use of mechanics and engine drivers.

Cagliari and other towns in the province are provided with technical schools.

At Lanusei there exists a normal school or college for male school teachers, whilst at Cagliari the normal school for females is making rapid progress and proving very useful in providing good elementary teachers, who are found to be of great assistance in the education of the women in the rural districts, which has during the past been so woefully neglected.

At Cagliari a training school of arts and handicrafts for the benefit of the lower classes has been founded with good results. For the agriculturists there is a school of vine culture and œnology recently established at the expense of the Government, province, chamber of commerce, and the municipality, the latter having more particularly given important aid to the new institution. This school of œnology will give a beneficial impulse to the art and knowledge of wine-making, and it may confidently be expected that in course of time these wine producers will be able to present wines of a uniform type, though it must be acknowledged that considerable progress has taken place in the province of Cagliari within the last few years. At Iglesias

there exists a school of mines subventioned by the Government, the province, the Chamber of Commerce, and the municipality of Iglesias.

After the passing of the Act on compulsory education the number of public schools of elementary education is constantly increasing, so that every commune in the province has its school. The communes being 265, there is an equal number of schools for boys and girls, whilst in the smaller villages and hamlets instead of two separate schools there is only one, called a mixed school. Elementary schools.

Charitable Institutions.

Annexed to the civil hospital already mentioned there is a lunatic lunatic asylum, where are received all the destitute lunatics of the province; all the expenses for their keep and cure being entirely borne by the province itself. Lunatic asylum.

Another institution, but one of minor importance, is the hospital for the incurables. Hospitals.

It is to be regretted that in this province very little is done for the poor foundlings. Towards the expenses of this service the province provides one-third only of the sums required.

The death-rate of these poor little creatures is indeed deplorable, considering that, more especially in the city of Cagliari, it reaches the rate of 61 per cent. compared with those of the other cities of the kingdom, where the highest mortality is only of 20 per cent., and in some goes as low as 7 per cent.

It is impossible to indicate the death-rate of children in the other communes of the province, but it can safely be stated that it is much below that given by Cagliari.

With the object of improving the pitiable condition of this service a committee has been formed, which has presented a scheme for the foundation in the civil hospital of a maternal institute, the want of which is very much felt.

The deaf and dumb asylum is well managed, and gives satisfactory results. In the course of the present year eight pupils were duly graduated, four boys and four girls; for all of them convenient situations have been at once provided, and now they are placed in a condition to earn an honest livelihood, being quite capable of understanding and making themselves understood, not only by means of writing, but by speech. Deaf and dumb asylum.

The places left vacant by the licensed pupils have been filled at once by an equal number of new ones, the total number of pupils being now 44, all of them giving constant proofs of the beneficial effects of the teaching and education imparted to them.

The destitute poor old men and women unable to work are provided with a commodious, clean, and comfortable workhouse. It is to be hoped that this benevolent institution will be able to extend its benefits by means of the gifts and subscriptions of kind donors which are continually flowing in. Workhouse.

Orphanage.

For the orphan girls of respectable families there is the institute named the "Figlie della Provvidenza," where a liberal education is imparted to these lone creatures, who, after a certain course of studies, receive the diploma of elementary school teachers.

Orphan boys are recovered in the asylum "Carlo Felice," to which is annexed the school of arts and handicrafts already mentioned.

For orphan children of both sexes belonging to the lower classes there is an important asylum called "San Vincenzo de Paoli," whilst other poor children are received in three asylums placed in the sections of the town called Marina, Villanova, and Castello, where the little inmates are comfortably lodged and receive board and a suitable education.

Crime and Criminals.

Crime.

Criminality in Sardinia is beginning to feel the effects which are produced on human nature by such powerful preventive agents as education, instruction, and the great diffusion and spreading of charitable institutions.

From the table annexed to the present report, in which is shown the number of crimes committed in Sardinia in the year 1891, and in which is also indicated the yearly average of crimes committed in Sardinia from 1879 to 1889, such figures having been taken from the report published by Sir D. Colnaghi, Her Majesty's Consul-General at Florence. It appears that whilst the heavier crimes, such as murders, extortions with murder, poisonings, and child murder, have considerably decreased, on the other hand the lighter offences are all on the increase, especially simple thefts and all smaller offences against property, and more particularly those against the police regulations; consequently all the crimes reported to the magistrates and King's attorneys during the year 1891 amounted in Sardinia to 30,218, or 4,075 more than in the year 1890, in conformity with the report presented by the King's Attorney-General at Cagliari to the judges assembled at the opening of the session, or term, in 1892.

On this subject the above learned magistrate most properly observes, that such an increase should not be taken to heart, for it is only an increase in number and not in the gravity of crimes. Without entering into any particulars the learned magistrate observes that, unlike the previous years, last year to which the report refers there were no parricides committed.

The appearance in Sardinia of a new species of crime which before now had been totally unknown is to be deplored, and that is, what in Italian is called "ricatto," viz., the violent seizure of persons for whose release a ransom is demanded under threat of death if not paid within a time and place fixed by the brigands.

After having mentioned how the combined action of the law

and the police have swiftly been directed against those malefactors: the King's Attorney says, "We must in a certain measure feel grateful for the fact that the highwaymen did not ill-treat their victims, or inflict on them any personal injury, and we may apply to their misdeeds the sentence of Leopardi:—'L' uomo é quasi sempre tanto malvagio quanto gli abbisogna' (man is nearly always as wicked as he needs to be)."

DELINQUENCY in Sardinia for the Year 1891.

	Total of Crimes.	Murders, Rapine with Homicide, Simple Homicides.	Woundings and Assaults, or Personal Injuries. Order of Families.	Offences against Morality, and the Public Administrations.	Offences against the Public Faith and the Public Administrations.	Qualified and Aggravated Robberies.	Thefts and Larcenies.
For the year 1891 ..	12,193	172	2,080	184	1,967	3,206	4,584
Average per 100,000 inhabitants ..	1,741.85	24.55	297.14	28.28	281	458	654.28
Annual average per 100,000 for the period 1879-89 ..	1,439.54	27.62	119.43	21.37	70.77	15.04	..

NOTE.—In this summary are not included the inferior crimes and the contraventions to the laws and regulations.

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ITALY.

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CONDITION OF LABOUR IN ITALY.

REFERENCE TO PREVIOUS REPORT, Miscellaneous Series No. 211.

*Presented to both Houses of Parliament by Command of Her Majesty,
MARCH, 1893.*

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ITALY.

FLORENCE.

Consul-General Sir D. Colnaghi to the Earl of Rosebery.

My Lord,

Florence, January 29, 1893.

I HAVE the honour to transmit to your Lordship, herewith enclosed, some additional Notes on the Present Condition of Labour in Italy in continuation of my Report on the same subject published in 1891.

I have, &c.
(Signed) D. E. COLNAGHI.

Report on the Present Condition of Labour in Italy.

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Strikes.

General
remarks.

In my Report on the Condition of Labour in Italy, published in 1891,* I had brought the summary notices of the strikes that had occurred in this country from 1860 down to the beginning of 1884. From an able and detailed report, drawn up by the Com-mendatore L. Bodio, Director-General of Statistics in the Ministry of Agriculture, Industry, and Commerce at Rome,† I am now able to complete the information on this subject to the end of 1891.

Signor Bodio states in his report that he has been able to add to the notices of the strikes which occurred in Italy between June 1, 1878, and February 12, 1884, and which were first published in the report drawn up by the Marquis of San Giuliano for the Parliamentary Committee on the Law to regulate Strikes of May 30, 1883. Even now, however, the statistics can hardly be considered complete, as it appears that all the strikes deferred to the tribunals were not reported by the prefects to the Central Administration. The figures given in Signor Bodio's report only refer to those strikes reported to the Ministry of the Interior.

It is not, moreover, always easy to determine the real number of the strikes, as the sequence of events may often have caused a single strike to be reckoned as one or more, according to the moment at which the notice was given, or the point of view from which it was considered. The number of men on strike and the number of days each strike lasted cannot always be indicated with precision, and the information supplied on these heads must be considered as more or less approximative.

Signor Bodio has deemed it advisable to draw up separate statistics of lock-outs as distinguished from strikes, and has, for the first time, separated the purely agrarian from the industrial strikes, retaining, however, in this latter category the strikes of day labourers (navvies) and others employed on railway and other public works.

This distinction is of great importance in the present conditions of agricultural Italy.

I have summarised, as briefly as possible, the whole of the information collected by Signor Bodio with reference to the industrial strikes that occurred in Italy between 1878 and 1891. This will render it necessary to cancel the information regarding the strikes from 1878 to 1884, contained on page 29 of my previous report.

* Report on the Condition of Labour in Italy, Foreign Office, 1891, Miscellaneous Series No. 211, pp. 25-29.

† Ministero di Agricoltura, Industria e Commercio, Direzione Generale della Statistica. "Statistica degli Scioperi avvenuti in Italia negli anni dal 1885 al 1891." Roma: Tip. Nazionale, 1893. (Of this report I have been kindly permitted to see the proof sheets, from which my summary has been taken.)

Industrial Strikes, June 1, 1878, to December 31, 1891.

The total number of strikes reported as having occurred in Italy during the above period amounted to 1,070. The strikes tend to increase in number and importance year by year. From 32 in 1879 they gradually rose to 96 in 1886; there was a slight decrease in 1887 (68), the maximum being attained with 136 strikes in 1890. In 1891 they numbered 132.

As collective work in factories is being substituted for domestic industry, the practice of strikes is becoming more familiar to the operatives, who, with the advance of elementary education, grow more exacting in their requirements. The propagation of Socialistic doctrines has not been without influence on the frequency of the strikes, which have not always been based on purely economic principles.

As is natural, strikes are most frequent in the regions where industrial activity is most fully developed. Of the 1,070 strikes recorded, 259 belong to Lombardy, 142 to Piedmont, 134 to Emilia, 86 to Tuscany, 85 to Venetia, 82 to Campania, 71 to Latium (which includes the capital), 63 to Liguria (a large number in proportion to its population), 48 to the Marche and Umbria. Of the remaining 100, 77 occurred in Sicily, chiefly among the workers in the sulphur mines, while the remainder took place in other provinces of Southern Italy and in Sardinia.

The immediate causes of the strikes are very various. Signor Bodio has grouped them under five heads:—

1. For an increase of wages.
2. For a reduction of working hours.
3. Against a reduction of wages.
4. Against an increase in the working hours without an equivalent.
5. On account of other differences in the labour contract, such as the method of paying wages (weekly or fortnightly); solidarity with other operatives on strike; the inferior quality of the first materials given out to weavers; special technical conditions of manufacture; fête day work; internal regulations of workshops; to obtain the dismissal of outside hands; ill-feeling against the managers and foremen of factories, and the like.

In accordance with these divisions it results that of the 1,070 recorded strikes, 552 were for an increase of wages, 73 for a reduction of working hours, 116 against a reduction of wages, 20 against an increase in the working hours, while 308 belonged to one or other of the causes noted under heading 5. Of one strike the cause is not known.

Dividing the strikes into two periods, the first from June, 1878, to the end of 1887, which may be considered as a period of economic expansion, and the second from 1888 to the end of 1891, when, by reason of the industrial crisis, there was economic restriction, there were, for every 100 strikes:—

Number.	Causes of Strikes.	Per Cent.	
		1878-87.	1888-91.
1	For an increase of wages	54	48
2	For a diminution of working hours	5	8
3	Against a reduction of wages	10	13
4	Against an increase in the working hours	2	2
5	Other causes	29	29

Termination of strikes, percentages in favour of hands, masters, or concessions.

The strikes, as far as the results can be approximately ascertained, ended for 17 per cent. in favour of the operatives; for 41 per cent. in a compromise, which may have been more or less favourable to the operatives, as the agreement was, or was not, duly carried out, and for 42 per cent. to the advantage of the masters.

These proportions were maintained without any notable variation during the whole of the 13½ years under review, exception being made for the years 1884, 1885, and 1888, in which the percentage of strikes terminating in favour of the operatives rose to 22, 30, and 24 per cent. respectively. The first two were years of great industrial prosperity, the third marked the most acute period of the crisis.

Industries affected by strikes.

The strikes may now be classified among the principal industries affected by their action, as noted below:—

Description.	Number of Strikes.
Textile industries	240
Mineral, metallurgical, and mechanical industries ..	144
Day labourers (navvies), masons, brickmakers, and the like	260
Printers and lithographers	22
Hatters, tanners, and other operatives connected with the clothing industry	85
Bakers and other operatives connected with the alimentary industries	77
Carpenters, glaziers, hackney coachmen, carriers, boatmen, carters, and porters	117
Various industries	125
Total	1,070

Relative importance of, and number of operatives engaged in strikes.

The relative importance of the strikes may be deduced from the number of operatives who took part in them, and by the number of days during which each strike lasted.

The number of operatives out on strike during the period under review has only been ascertained for 1,039 out of the 1,070 strikes recorded. Their total number is estimated approximately at 265,436 (male and female). In 1879 the number of

hands on strike was under 5,000, in 1890 they had risen to 38,402, in 1891 they were 34,733.

Nearly one-half of the strikes did not, however, affect more than 100 workmen at a time, as is noted in the following table:—

Number of Operatives.		Number of Strikes.
From —	To —	
1	49	273
50	99	206
100	149	122
150	199	78
200	299	124
300	399	54
400	499	42
500	599	34
600	699	15
700	799	18
800	899	15
900	999	5
1,000	1,999	32
2,000	2,999	13
3,000	3,999	3
4,000	4,999	3
5,000 and more		2

Some of the strikes were, however, important as regards numbers, such as that of the brickmakers of Rome, which occurred in May, 1885, in which 9,150 operatives were engaged, and the strike of the weavers of Como in November, 1888, during which 5,000 hands went out.

Among the strikes that occurred in 1891, may be noted the strike of the machinists of Milan, in which more than 2,000 men were engaged, and which lasted 14 days, threatening at one time a general strike among the industries of the city; those of the weavers of Schio (1,300 operatives), of the tanners of Genoa (600), of the cigar makers at Naples, during which 2,000 female hands were on strike for 10 days; of the weavers of Como, affecting 2,000 operatives (male and female) for about 15 days; and, lastly, the strikes in the sulphur mines of the province of Caltanissetta and Girgenti, in which about 7,000 men took part.

With regard to the duration of the strikes more than one-half ^{Duration of} did not last over three days, about a fourth between four and ^{strikes.} ten days, less than that proportion extended to more than 10 days. The longest strikes were those of the batters of Andorno in May, 1885, and of the spinners (female) of Azzate in March, 1889, which lasted respectively 90 days; of the weavers of Valle Mosso Superiore (1,600 operatives), two months; of the batters of Monza (about 1,000 hands), which lasted 60 days; and of the masons of Bologna, in May, 1887, 20 days. The female weavers

of Varese (700) were on strike in October, 1888, for 45 days. But Signor Bodio remarks that these are extreme cases, and that, up to the present time, strikes in Italy have generally been terminated within a very limited number of days.

Multiplying the number of days which each strike lasted with the number of hands employed, the total loss of time, and consequently of wages, to the operatives is shown. The result gives a total of 1,847,011 days, beginning with 21,895 days in 1879, and gradually increasing to 243,809 days in 1885. In 1886 the number of days lost was 56,772; in 1887, 218,612; in 1888, 191,204; in 1889, 215,880; in 1890, 167,597; and in 1891, 257,459.

Lock-outs, June 1, 1878, to December 31, 1891.

Before considering the agrarian strikes I would briefly refer to the returns of lock-outs or closures on the part of the masters, information concerning which has been collected by Signor Bodio in a separate table.

Number of
lock-outs.

The total number of closures was 38, of these 35 affected 5,673 operatives; for 3 lock-outs the number of operatives interested is not known. Eighteen lock-outs lasted from 1 to 3 days, 13 from 4 to 10 days, 5 for more than 10 days, while the length of 2 has not been ascertained. The total number of days lost to the hands amounted to 21,689.

Causes of
lock-outs.

Of actual lock-outs on account of disputes between masters and hands there were only three; two in 1885, on the part of hat manufacturers in the province of Novara, one of which was to impose a reduction of wages, and the other to prevent the hands joining the Federal Union of Hatters. These lock-outs affected 40 and 50 hands respectively, the first lasted 30 days, the second 12 days, and both ended in an arrangement. The third lock-out was at a weaving factory at Pisa, which was closed for one day on account of some breach of the regulations on the part of the hands, who are noted as numbering 1,000.

The remainder of the closures had no relation to the conflict between capital and labour. The closing of their factories or shops was made by the masters to strengthen their protests against the Government for a threatened increase of income tax, or against the municipal authorities for the establishment, or abolition of the "calmieri" or fixed rates for bread and meat, or on account of vexatious regulations, or against the competition caused by prisoners' labour, or, finally, on account of questions of trade rivalry.

Agrarian Strikes, 1881 to 1891.

General
remarks.

In my Report on the Condition of Labour in Italy, I alluded briefly to the general condition of the rural population.* Subse-

* See pp. 13-15.

quent information leads me to believe that the state of the agricultural labourers, in many parts of the country, is even more serious than I then ventured to note. The problem is considered as more difficult of solution in this country than that connected with industrial labour. Signor Bodio has, therefore, done good service in calling attention to the strikes that have occurred among the rural population, as distinguished from the industrial strikes properly so-called. It has already been pointed out that under the heading of industrial strikes have been included the strikes that have occurred among day labourers (navvies) and others employed on railway and other public works, as not being connected with questions of purely agricultural labour. These labourers, however, form part of the rural population, and are animated by the same wants and desires as the other members of their class. To some extent this remark would still be applicable to a large part of the Italian industrial hands, who are more or less closely connected with the land.

I have considered this portion of the subject of sufficient importance, as regards the prosperity of Italy, to warrant my translating, almost textually, Signor Bodio's account of the agrarian strikes.

A strike of agricultural labourers occurred, in 1881, at Velletri in the province of Rome. In 1882, two strikes broke out in the provinces of Catania and Como, and other movements of a similar nature occurred, in 1883, at various points, but these were localised temporary disputes and were quickly and easily arranged.*

Symptoms of
agrarian
agitation.

From the year 1884, however, the struggle in some provinces of the valley of the Po has assumed a general and serious aspect, with a substratum of Socialistic agitation, which has disclosed the existence of a permanent hostility nourished by the peasantry against the landlords, and ready to break out at any moment.

The agrarian agitation commenced in the province of Rovigo. The losses, occasioned by the great inundation of 1882, had seriously affected the economical condition of the land owners and farmers, and, in consequence, that of the labourers. While the public works undertaken to repair the damages caused by the breakage of the dykes lasted there were no disturbances, but, on their completion, suffering commenced, quickly followed by disorders.

Province of
Rovigo.

A subversive association, formed at Adria, with committees and branches in various parts of the province (Rovigo), commenced a patient and vigorous propaganda among the peasantry to incite them to insurrection; they wished to compel the land-owners and farmers to raise the prices for reaping the crops from 8 per cent. to 12 per cent. of the produce (according as threshing was or was not included) to 30 per cent. The movement commenced in June (1884). Strikes of a tumultuary character

* According to the statistics published by the Marquis of San Giuliano, between 1878 and the beginning of 1884 a total of 31 strikes of agricultural labourers had occurred.

broke out in several communes. There were threats, acts of violence and resistance against the public force. Vines, trees, and other plants were cut down, while here and there acts of arson were committed. The political authorities placed troops at the disposal of the proprietors to reap the harvest. Finally a compromise was effected, and the price for reaping was raised to 20 per cent., 22 per cent., and in some instances to 23 per cent. of the produce.

The work of organisation, however, continued. Associations of peasants were founded, ostensibly as benefit societies or co-operative labour associations, but with the secret object of binding the labourers together for a renewal of the agitation.

Province of
Mantua.

In 1885, the scene of the movement was transferred to the province of Mantua. In Mantua two associations had been formed, the one under the denomination of "*Società Generale dei Lavoratori*" (General Society of Labourers), the other under that of "*Società di Mutuo Soccorso dei Contadini*" (Rural Labourers' Benefit Society). These two societies, aided by various political associations existing in the province, commenced an active propaganda among the peasantry. They organised them by thousands in sections and sub-sections, with branches depending from the central associations in nearly every commune, and fixed the tariffs of wages, to be imposed on the proprietors, for casual labour and for piece-work.

The strike commenced in the province of Mantua* in the latter half of February, first, among the labourers employed on public works, and later, in March and April, among the agricultural labourers. The disorder spread through several communes. The prompt and energetic action of the political authorities broke up the organisation of the peasants, and the strike ended. The proprietors through the friendly intervention of the authorities granted the labourers some slight increase of wages.

Province of
Verona.

The agitation in the Mantovano was spread, by means of the two associations previously mentioned, to the province of Verona, in which there occurred several tumultuary meetings and some strikes, but matters were easily arranged. The agitation was more serious in the province of Padua, where various local strikes took place, accompanied by threats, acts of violence, and damage to property. The peasant agitation in the provinces of Parma, Reggio (Emilia), and Modena, formed a sequel to that of Mantua. Prepared by individuals who did not belong to the agricultural

Provinces of
Parma,
Reggio
(Emilia), and
Modena.

* This movement, the organisation of which commenced, I believe, in 1884, appears to have been of an entirely Socialistic character. The leaders did not belong to the agricultural class. It has been said that the organisation included 20,000 peasants, but this is probably exaggerated as the upper part of the province, from Castiglione delle Stiviere down to the confines of Brescia, was not affected by it. Although damage may have been done to property, no blood was shed. Many arrests were made, and, after the movement was put down, there was a Government prosecution. The trial was held at Venice and ended in a verdict of acquittal for the defendants, who had been in prison for more than a year. In a reference to this strike in my previous report, page 16, the date is erroneously given as 1887, instead of 1885.—D.E.C.

class and with a manifestly subversive tendency, it did not take readily, and the strike was only put in force in a few communes. At Soragna (Parma) the metayers acted in concert to compel the proprietors to modify the contract of metayage. Their pretensions led the way to the strike of the metayers in the Upper Milanese to be presently mentioned. In the province of Reggio (Emilia) associations of peasants were formed on the basis of those of the Mantovano. The centre of the agitation was the district of Guastalla. Some strikes occurred, but none of great importance. In the province of Modena meetings were held by the agricultural labourers, but no disorders occurred. They were composed of unemployed casual labourers who solicited work from the municipalities.

In the Milanese the agitation was not provoked by the labourers. The bulk of the movement was composed of the metayers and small tenant farmers. The first symptoms of agitation were noticed at Vimercate, in the month of June. A committee was appointed to demand an increased payment for the "giornata colonica"* from 60 c. to 1 lira per diem, half to be a matter of account and the balance to be paid weekly, in cash. They also demanded a diminution in the rent of the farm-house and the permission to have looms in their houses. The proprietors replied that they could only take these demands into consideration after November 11 (St. Martin's Day), when the annual contract of metayage terminates. This reply added fuel to the agitation. The proprietors were threatened; vines, mulberry, and other trees and plants were cut down, and tumults, in which subversive cries were heard, took place. The proprietors became alarmed, and one after another made concessions, in different degrees, as to an increased payment for the day's work required for their service. Encouraged by this first success, the metayers increased their demands, which, besides a diminution of house rent, included a reduction of the corn rent, a lightening of their share of the land tax (prediale), and a diminution of the so-called "appendizi."† The agitation spread in a few days from district to district, extending to 20 communes of the district of Monza and nearly as many in the district of Milan, and even making its way into the province of Como. It fell at last from exhaustion. The metayers did not obtain all their demands, but some further concessions were forced from the proprietors.‡

* The "giornate coloniche" are the days of work the metayer is bound by his contract to give the proprietor, when required, at a fixed rate of payment.

† The "appendizi" are certain fixed payments, formerly always in kind, such as fowls and eggs, now often commuted for a fixed sum in money.

‡ In the month of May, 1859, agrarian disturbances occurred in the district of Gallarate to the west of the city of Milan, in which the whole rural population of several communes appear to have taken part. The agitation was provoked by the same causes as that which led to the strike of 1855, but the conduct of the peasantry displayed much greater violence. Riots broke out in various localities; the villas of the proprietors were damaged and an attempt was made to set fire to a municipal building. The troops were called out, and in one instance, at least, were compelled, it is stated, in self-defence, to fire on the people, blood being shed.

Province of
Milan.

Agrarian
disturbances
in the
Milanese in
1859.

Province of
Bologna.

Province of
Rovigo.

Number of
agrarian
strikes
recorded.

In the following six years, 1886 to 1891, the strikes were repeated in almost all the localities in which they had previously occurred. In 1886 and 1887 they disturbed the district of the lower Bolognese, the workers in the rice fields in large numbers taking an active part in them. The organisation of the previous years having, however, been stifled, the strikes were neither so numerous nor did they display so serious a character of antagonism as those which had, previously, broken out in the provinces of Rovigo and of Mantua. They again assumed the aspect of local movements of short duration, which it was not difficult to arrest at their birth by means of prudent concessions. In the province of Rovigo there were some further strikes in the spring of 1891.

Signor Bodio states that the data collected with regard to agrarian strikes is too incomplete for a summary, and that the table, imperfect as it is, has only been published with a view of assisting students in their study of this complex question. I have, therefore, contented myself with adding here a list of the strikes recorded by Signor Bodio under their separate years, with the provinces in which they occurred.

Year.	Number of Strikes.	Provinces in which the Strikes occurred.
1881	1	Rome.
1882	2	Catania, Como.
1883	3	Bologna, Rome.
1884	10	Padua, Rovigo, Verona, Vicenza.
1885	62	Como, Cremona, Mantua, Milan, Parma, Reggio (Emilia), Rovigo, Verona.
1886	17	Bologna, Ferrara, Mantua, Milan, Pavia.
1887	7	Bologna, Grosseto.
1888	5	Bologna, Rovigo.
1889	4	Bologna, Milan.
1890	8	Bologna, Cremona, Ferrara, Milan, Ravenna, Rovigo.
1891	24	Ferrara, Milan, Modena, Ravenna, Reggio (Emilia), Rovigo.
Total	143	

The acts of violence were attributed by the public press at the time to the instigation of agents of the anarchical party, and various arrests were made.

Like the strike of 1885 the movement terminated by some concessions being made by the proprietors. That the peasantry here, chiefly small tenant farmers, suffered under real grievances there is no doubt; but the position of the small and medium proprietors, hampered by heavy taxation, want of capital, and the fall in the prices of agricultural products, must also be taken into consideration.

About the same date there appears to have been general distress among the peasantry of Apulia. A large portion of the land had been laid out in vineyards, for the cultivation of which, owing to the losses incurred through the tariff war with France, the proprietors were unable to pay. The labourers took the law into their own hands and insisted on employment being given to them. On being refused, in one instance, a vineyard of 5 hectares (12·35 acres) in extent was cut down and completely destroyed. At the present time an outlet for Italian wines is being found in Germany and Austria, but in many parts of southern Italy the condition of the agricultural labourers is far from satisfactory, though the causes differ from those which affect the peasantry of the northern provinces.—D.E.C.

Of the above 143 strikes, 137 occurred in Lombardy, Venetia, and Emilia; 1 only in Sicily; 1 in Tuscany, and 4 in the province of Rome. For Piedmont and the other regions of the kingdom no agrarian strikes have been recorded.

For purposes of reference I note here the approximative number of strikes of labourers employed on railways and other public works that occurred between 1878 and 1891, and which have already been included in the 1,070 industrial strikes tabulated in Signor Bodio's report.

Approximate number of labourers employed on railway works, &c., between 1878 and 1891.

Year.	Number of Strikes.	Number of Hands on Strike.	Provinces in which the Strikes occurred.
1878	2	570	Lucca, Salerno.
1879	7	2,150	Arezzo, Parma, Reggio (Emilia), Rovigo, Udine.
1880	1	800	Parma.
1881	..	..	..
1882	1	250	Ravenna.
1883	13	5,375	Arezzo, Bergamo, Bologna, Como, Mantua, Milan, Modena, Naples, Reggio (Emilia), Taranto.
1884	10	2,570	Aquila, Arezzo, Bologna, Forli, Messina, Padua, Potenza, Turin, Venice.
1885	21	8,212	Bologna, Como, Florence, Mantua, Padua, Potenza, Rovigo, Verona, Vicenza.
1886	14	4,905	Cremona, Ferrara, Forli, Reggio (Emilia), Rovigo, Treviso, Turin, Venice.
1887	6	2,431	Aquila, Bologna, Padua, Rome, Treviso, Verona.
1888	8	2,400	Cremona, Ferrara, Forli, Reggio (Emilia), Rovigo, Turin, Venice.
1889	9	2,725	Cuneo, Genoa, Ferrara, Perugia, Rome, Turin.
1890	20	5,558	Cuneo, Ferrara, Forli, Girgenti, Lucca, Padua, Parma, Piacenza, Potenza, Rovigo, Treviso, Udine, Venice.
1891	20	6,784	Caserta, Catanzaro, Cuneo, Forli, Genoa, Lucca, Modena, Perugia, Rome, Treviso, Venice.
Total ..	132	44,680	

Arbitration.*

Institutions for the settlement of disputes between capital and labour hardly exist in Italy. In the event of strikes the political authorities are called upon to restore order; after which, by common consent, the question is either referred to the president

General remarks.

* See Signor Bodio's report on the strikes that have occurred in Italy between 1878 and 1891.

of the local Chamber of Commerce, or, as is generally the case at Genoa, to some person of influence. At Milan the office of arbitrator has hitherto been, in some cases, assumed by the "Consolato operaio"* and has now been taken up, as one of its functions, by the new Labour Chamber.† On the occasion of a recent strike of typographers in that city, a public notary was selected to preside over the committee of arbitration, which was composed of representatives of the masters and of the workmen. At Como alone has a "Collegio," or board of arbitrators, been instituted, composed in equal parts of manufacturers and of operatives, and invested with the double mandate of conciliating and of determining disputes, between masters and hands, respecting questions of payment for work.

Silk Weaving
Association of
Como.

In 1877 the "Associazione della Tessitura Serica" (Silk Weaving Association) of Como opened a special office for the settlement of the almost daily disputes occurring between operatives and manufacturers about the prices to be paid for work. A general strike had shown that the abuses of which the weavers complained were often founded. Silk weaving at Como is generally carried on in the operatives' homes, and the work is paid for by the piece. Of this system, some manufacturers appear to have availed themselves to underpay the weavers, and consequently to be in a position to undersell their competitors. The operatives, however, viewed the new office with distrust, as being in the hands of the masters, and rarely sought its mediation.

Board of
arbitration for
silk weavers.

In 1880 another strike on the question of prices broke out. The weavers demanded the compilation of a single minimum tariff, and that the office established by the Silk Weaving Association should be converted into a *bonâ fide* board of arbitration. After repeated meetings of committees representing the operatives and the manufacturers, which were held at the Chamber of Commerce and at the municipality, the regulations for the "Giuria per i Tessitori di Seta" (Board of Arbitration for Silk Weavers) were completed on January 1, 1883, and have since remained in force.

Its com-
position.

The "Giuria" is composed of 78 members, of whom 30 are manufacturers elected by the Chamber of Commerce with the concurrence of the committee of the Silk Weaving Association, and 48 operatives, not under 21 years of age, elected by the "Consolato operaio"‡ in general assembly. The elections are annual. A presiding committee (Ufficio di Presidenza) is named by the "Giuria" from among its members. This committee is

* See Report on Condition of Labour in Italy, pp. 41-45.

One result of the establishment of the Labour Chamber in Milan, combined with the rise of the new Labour Party (p. 16), has been the disorganisation of the "Consolato operaio," which is being re-formed on a fresh basis.

† See p. 14.

‡ Committee of Presidents and Consuls of the local Benefit Societies, a majority of the members of which, at Como, are weavers.

composed of 3 manufacturers elected by the operatives and of 3 operatives elected by the manufacturers, of the 6 members thus named each presides over the committee, in rotation, for two months.

The "collegio," or board of arbitrators, is composed of 8 members, 4 manufacturers, and 4 operatives, drawn by lot every two months by the presiding committee, from the general body of the "Giuria." The chairman is a member of the presiding committee, alternately an operative and a manufacturer, who is also drawn by lot every two months. The secretary is named by the municipality in concurrence with the Chamber of Commerce.

The complaints, whether made by masters or operatives, must be sent in to the presiding committee for conciliation. If this is unsuccessful the complaint is brought before the board of arbitrators, of which 4 members, 2 operatives and 2 manufacturers, with the chairman form a quorum. Conciliation.

The single minimum tariff, which was demanded by the operatives during the strike of 1880, was established in 1883 by a special committee of arbitration and not by the "Giuria," the attributions of which are to enforce the agreements come to between manufacturers and operatives, and to determine, generally, when disputes arise, the fair price payable for each piece according to the quality of the work.* First minimum tariff.

As a matter of fact, the first minimum tariff was never scrupulously observed. It was superseded in 1888 on the occasion of a strike, during which more than 10,000 looms remained idle, by a tariff drawn up by a mixed committee of 10 operatives and 10 manufacturers, under the chairmanship of the Syndic of Como. By this tariff the rates of prices were slightly raised. Second tariff.

In 1891 the agitation which had sprung up among the weavers, threatening to end in a general strike, the "Giuria," basing their intended action on an article of the regulations which empowers them in case of difference arising between manufacturers, foremen, and operatives, to interpose their good offices, were on the point of naming arbitrators to revise the tariff. On ascertaining, however, that their interference would have been unacceptable to both parties, no further steps were taken. The Syndic of Como then intervened, and, through his personal influence, it was agreed that each manufacturer, according to the articles he produced, should establish a fixed tariff, copies of which were to be deposited at the Chamber of Commerce and with the "Giuria." The prices of work were reduced on account of the depressed conditions of the silk weaving industry, and the single tariff disappeared. Establishment of separate fixed tariffs.

The "Giuria" has, therefore, no longer the power to conciliate general differences arising between manufacturers and operatives, even when they are confined to one firm or factory. Their action is now limited to the settlement of disputes occurring. Limitation of action of "Giuria."

* The attributions of the "Giuria" have since been restricted. See below.

ring between masters and weavers, with respect to the prices for work fixed by the separate tariffs when the tariffs themselves have been duly deposited as above.

Complaints
brought before
"Giuria"
between 1883
and 1891.

Between 1883 and 1891 the "Giuria" heard a total of 543 complaints, of which 43 were brought by manufacturers against operatives; 421 by operatives against manufacturers; 43 by foremen against operatives; and 36 by operatives against foremen; of these complaints 465 were conciliated by the presiding committee, and 78 were decided by the board of arbitrators.

Arbitration
assumed by
labour
chambers.

The labour chambers, as I have previously noted, with reference to that of Milan, are now beginning to assume the position of arbitrators in disputes arising between masters and operatives. The recently organised chamber of Venice proposes, in addition, under article 31 of its regulations, the establishment of a mixed industrial court of arbitration, for which the committee of arbitration, elected by the chamber, will come to an arrangement with the president of the local Chamber of Commerce. At Piacenza, also, a committee of arbitrators exists, named jointly by the Labour Exchange and the Chamber of Commerce.

Labour Movement.

In my report on the condition of labour in Italy,* previously referred to, I noted that the only Italian example of an association founded on the principle of an English trades union was that of the printers (compositors and pressmen). The movement, however, tending to the formation of societies for the protection of labour against capital is certainly on the increase, and a short account of some only of its principal phases, from the date of the formation of the new kingdom of Italy, may not be out of place for the better understanding of the position taken up by the Italian artisan.

Fratellanza
artigiana.

In 1861 an association, under the name of "Fratellanza Artigiana"† (Artisan Brotherhood), and with which the name of Mazzini is intimately connected, was started at Florence. This association was intended to embrace in a general union all the working men throughout the kingdom. The organisation was based on the trade college, with a minimum of 30 members belonging to the same craft. When a sufficient number of colleges had attained 3,000 members the Artisan Commune was formed. This was to have been followed by the Artisan Region, composed of the communes of a particular region, and the edifice was to have been crowned by the Grand Council of Primates with residence in the capital.

* Page 30.

† La Fratellanza Artigiana, Periodico del Comune Artigiana che ha sede in Firenze. Anno VIII. (Serie III), No. 35. Firenze, 5 Luglio, 1885. Appunti storici sulla Fratellanza Artigiana (L. Minuti)

Difficulties, however, soon arose on the political question, and, as a matter of fact, the only artisan commune of the brotherhood existing in Italy is that of Florence, which numbers 3,000 members; distributed in 60 colleges, belonging to various parts of Tuscany. Artisan commune of Florence.

The Florentine brotherhood is organised as a friendly society, granting aid in sickness to its members. It possesses a patrimony of 130,000 lire (5,200*l.*), and its annual income averages from 30,000 lire (1,203*l.*) to 40,000 lire (1,600*l.*). Among the institutions in favour of its members established by the association may be mentioned a store for the distribution of tools, sewing machines, furniture, stuffs, &c., payable in weekly rates; a small artisan bank; a co-operative building society; co-operative provision stores in several of the colleges; and a refuge for sick and impotent members, which is now being carried out. As a principal object of the association is to educate the operatives to a sense of their rights and duties, a bi-monthly journal is published, and a circulating library of about 1,000 volumes, containing the works of Mazzini, and others on history, political economy, &c., has been formed. Its organisation.

The scheme of a universal artisan brotherhood having proved unsuccessful, a fresh departure was taken at a general congress of working men's societies, held in Rome in 1871, in the form of a fraternal pact ("Patto di Fratellanza"), to which all the democratic societies were invited to adhere. The general principles enunciated by the pact, which were drawn up under the auspices of Mazzini, were the affirmation of the individual, of the family, and of liberty in harmony with the social system, with the practical object of improving the moral and intellectual conditions of the labouring classes by means of union and of co-operation. This phase of the movement is, therefore, not socialistic; politically it follows the doctrines of Mazzini. The direction committee of the United Working Men's Associations has its residence in Rome. Patto di Roma.

At the present time I am informed that the total number of societies adhering, more or less strictly, to the programme of the pact of Rome may approximately number 600, but I have been unable to obtain any precise figures on the subject. It must also be borne in mind that the societies are of very various degrees of importance, and that they are usually ruled by small committees, who do not always represent the opinions of the majority of the members. Societies adhering to Roman pact.

In the course of time a second party arose among the labouring classes, which has given pre-eminence to the social party over the political question, and the course of which may now be followed. Italian labour party.

An association, under the title of the "Partito Operaio Italiano" (Italian Labour Union), was founded at Milan in 1885, and dissolved by Prefectoral decree in 1886, as subversive of law and order, the leaders being prosecuted before the tribunals. The central committee subsequently took up its residence at Alessandria (1447)

in Piedmont, but appears to have returned to Milan in 1889. In 1891 the association is stated to have comprised 120 sections in different parts of Italy, but principally in the north, with, it is said, from 8,000 to 10,000 adherents. One of the principal sections was the "Fascio dei Lavoratori" (Union of Working Men), belonging to Milan and its neighbourhood, which then numbered between 3,000 and 4,000 members.

Congress of
Milan.
"Partito dei
Lavoratori."

In August, 1891, a congress of associations adhering to the "Partito Operaio" was held at Milan, when a fresh federation, under the title of "Partito dei Lavoratori" (Labour League), was formed. The congress was attended by representatives of about 200 societies or associations belonging to various parts of Italy, but chiefly established in Lombardy.

Congress of
Genoa.

From the date of the Milan congress to that of the congress held at Genoa, in the month of August, 1892, the time was spent in preparing the programme and rules of the new association, which is based on the principles of Socialism. When the congress met its proceedings were interrupted by a violent minority professing Anarchical opinions, to such an extent, indeed, that the Socialist majority, leaving their antagonists in possession of the field, retired in a body from the place of meeting and proceeded to open a second congress in a hall placed at their disposal by a local society. Of the numerous working men's societies of Liguria not more than 19 appear to have been represented at the congress, from which the "Fratellanza Artigiana" of Florence was also absent.

Associations
represented at
congress.

From an account of the proceedings of the congress, contained in the official organ of the party, the "Lotta di Classe,"* it would result that 192 federations and associations were represented at Genoa, the number of separate societies included in them being estimated at 1,000 (?). The associations were of all colours—benefit societies, general and special trade associations, associations of agricultural labourers, co-operative societies, Radical, Democratic, and Socialist organisations. It must be borne in mind, however, that many of these societies are very small, both in numbers and importance. The large majority of the associations belonged to Lombardy and Emilia, then followed Piedmont, Venetia, Tuscany, and Liguria, with, in minor proportions, the southern provinces and Sicily. Sardinia appears to have sent one representative.

The strength of the movement—in which, however, the rural population have begun to take part—is, therefore, to be found in the most industrial regions of the kingdom. That it is extending to other parts may be deduced from the fact that a Sicilian federation of recent origin, the "Fascio dei Lavoratori" (Labour Union), represented at the congress, had, in the course of a few months, obtained about 8,000 adherents. I have been informed, however, that the union, owing to internal dissensions, has since decreased in strength, and that it can only be considered to have taken root in one city, Catania.

* *Lotta di Classe*, *Giornale dei Lavoratori Italiani*; anno 1, Nos. 2 to 6, August 6-7 to September 3-4, 1892. The paper is published, weekly, at Milan.

Expressions of sympathy with the objects of the congress were received from France, Belgium, Spain, Germany, Austria, Roumania, and from one large British union.

The programme of the new league, as settled at the congress, may now be briefly summarised. Two classes only exist in modern society, the proletariat and the capitalist. All human beings, provided that they contribute, according to their strength,* to create and maintain the benefits of social life, have a right to share in them. The redemption of the proletariat, or wage-earning class, can only be effected by the socialisation of the factors of labour (land, mines, factories, railways, &c.), and by a common administration of production. To enable this end to be attained the proletariat must be organised as an independent class party, developing its action under a double aspect:

1. As an industrial contest for the immediate improvement of the condition of the working class (working hours, wages, regulations of factories, &c.), committed to the labour chambers and other associations of crafts and trades.

2. As a movement of a more extended nature, intended to acquire political power (State, communes, public administrations, &c.), which is no longer to be used as an instrument of pauperisation† and of oppression, but as a means of obtaining the economic and political expropriation of the dominant class.

In carrying out the second part of the programme the assistance of all friends of the proletariat, although they do not belong to its ranks, is willingly accepted.

Under its statutes the league is composed of all the federations and societies, rural or urban, that fully adhere to its programme. All trade societies are, as far as possible, to be organised in sections of crafts and trades. The collective action of the league is developed by means of a general congress to be held from time to time, as occasion requires; of regional congresses for local interests, and of a central committee, composed of seven members, who are invested with the executive power, and remain in office from one general congress to another. There is also an international secretary, by whom the relations with foreign labour parties are to be maintained.

The funds for supporting the action of the league are derived from annual subscriptions of 2 lire (1s. 7d.) for any society numbering less than 100 members, and of 5 lire (4s.) for the societies numbering 100 members and upwards; an annual fee of 10 lire (8s.) levied on each federation, in addition to the quota paid by the separate societies, and a fee of 2 lire (1s. 7d.) to be paid by every society, not aggregated to the league, which desires to intervene at the congresses. Subscriptions may also be received, in special cases, from societies whether aggregated or not, and from members and non-members of the league, provided that the

* The principle that all men are born equal is not recognised.

† "Sfruttamento," from "sfruttare," to render sterile (as of land), to fleece; perhaps the modern equivalent would be sweating.

liberty of action and the dignity of the league receive no prejudice.

A special fund is established for assisting all the victims of judicial, Government, and capitalistic persecutions against the action and propaganda of the league.

The city named to be the seat of the next congress is Reggio Emilia; for the present the central committee has its residence at Milan.

The formation of the "Partito dei Lavoratori" is admittedly an experiment on an ambitious scale. It is too soon to judge of what its results may prove to be, nor has it been possible for me to obtain any reliable information as to its present strength.

Congress of
Palermo.

In the month of June, 1892, previous to the Congress of Genoa, a general congress of working men's societies was held at Palermo, which is interesting from an animated discussion which arose between the representatives of the Mazzinian Republican and of the Socialist parties.* In the result, an order of the day of a conciliatory nature was unanimously carried, to the effect that in the federated societies there was place for all those who admit that the first and most efficacious means of solving the social question lies in the political organisation of the State on the basis of the sovereignty of the people, and that all the institutions founded on privilege must be transformed until a thorough politico-social emancipation has been acquired. The principle of the class struggle ("lotta di classe") was also affirmed, and the advantages to be derived from a general federation of working men's societies fully recognised. To this congress, also, the "Fratellanza Artigiana," of Florence, declined to send a representative.

Congress of
Cremona.

I would next notice a congress of working men's societies held at Cremona in the month of September, 1892,† to which some of the leading members of the co-operative movement were invited. The Congress was presided over by the Commendatore Luigi Luzzatti, late Minister of the Treasury in the Rudini Ministry, and the promoter of popular banks in Italy. From the resolutions carried, and which I note here as briefly as possible, the holders of socialistic opinions appear to have found a majority of the representatives assembled at the Congress.

It was first resolved that obligatory instruction should include the fifth elementary class, that professional and popular schools should be established by the working men's associations, that the members of these societies should be divided in sections according to their crafts and trades, that the principle of arbitration should be adopted, and the legal equality of the female sex recognised.

* From summary of report in the "Nazione" of Florence, June 2, 1892.

† *La Cooperazione Italiana*; anno VI., No. 78, Milan, Settembre 30, 1892; pp. 163-165.

On the subject of this Congress and on other points connected with the social movement in Italy an article, "Il Movimento Sociale in Italia," written, in September, 1892, by Professor Ugo Rabbeno for the "Rassegna Agraria, Industriale, Commerciale, Politica," and now published separately at Naples, may be profitably consulted.

Further, that on the approaching opening of Parliament, the Luzzatti Bill, entitling co-operative labour societies to tender for contracts for public works exceeding 100,000 lire (4,000*l.*), should be reintroduced,* and that these societies should unite in pressing on the Government the necessity of adopting measures in favour of the rural population, such as the cultivation of waste lands, and the abolition of useless middlemen.

After a long discussion on working men's dwellings, it was proposed and carried that the present building societies, and, in their default, the labour associations, with the support of the communes, and the assistance of competent authorities in hygiene, building, and in social studies, should be invited to undertake an enquiry into the actual conditions of the dwellings of the labouring classes, both urban and rural, in Italy. At the same time benefit societies, labourers' associations, the communes, provinces, and the State were to be moved to promote and aid, in the urban and country districts, the institution of co-operative societies for the improvement of the unsanitary dwellings now existing, and for the construction of new houses—either cottages, or built in flats, according to the needs of the several localities. Always, however, keeping three objects steadily in view—hygiene, economy, and the participation of the working-men in the ownership of the houses they inhabit, which houses are to become the collective and inalienable property of the members of the building societies. Resolutions were, also, passed in favour of the establishment of public dormitories for workmen, who might be homeless or on tramp.

The congress declared itself in favour of the federation of benefit societies having the same objects, locally in the first place, and gradually extending their sphere of union, so that the labour movement might attain to unity of action.

With reference to a pension fund for impotent workmen, it was voted that the State should recognise the obligation of its foundation, and that the fund should receive an endowment from the public revenue.

In order that the State may be enabled to assist in the organisation of labour, by diminishing the number of the unemployed, and liberating labour from the bonds of capital, the congress accepted the propositions that labour syndicates should be established in every province; that the existing legislation should be modified; that minimum rates of wages should be established; that antiquated feudal privileges should be abolished; and that a bank of labour should be instituted.

With regard to the juridical position of recognised benefit societies, as laid down in the circular of the Ministry of Agriculture, Industry, and Commerce of December 10, 1891,† and to the

* See p. 39.

† The circular of December 10, 1891, referred to in the text, declares that benefit societies cannot hold real property, whether acquired by purchase, deed of gift, or devise, without the previous authorisation of the Government in conformity with the law of June 5, 1850, and of Articles 932-1060 of the Civil Code. It is (1447)

steps to be taken to prevent their being considered as corporations in the sense of the law of June 10, 1850, and of articles 932-1060 of the Civil Code, the following order of the day was unanimously carried :—

1. That artisan benefit societies should, on the basis of the law of April 15, 1886, repeal, as illegal, the requirements of the Ministerial Circular of December 10, 1891.

2. That corporate rights should be legally conferred on societies of resistance as well as on benefit societies.

The congress finally recommended that in order to obviate the dangers of decadency, which are said to threaten benefit societies, especially in the smaller centres, more friendly relations should be established between the managers of the societies and their members, and that the division of the members into sections of crafts and trades should be carried out.

The president's address wound up the proceedings of the congress. While fully recognising the value of open discussion, Signor Luzzatti frankly and unhesitatingly declared that, in his opinion, the resolutions carried were, in their entirety, impracticable of realisation under the present conditions of the country. "Let," he is reported to have said, "the good be taken wherever it may be found; and let the advance be made step by step, in order that at least some certain progress may be made." This speech was, it is stated, received by all the congressists present with a salvo of applause.

General
remarks on
Italian labour
movement

The labour movement in Italy is still in its infancy, and the importance of its results cannot always be estimated by the enthusiasm of its supporters. Nowadays, however, events advance rapidly, and the movement demands serious study.

The great mass of the Italian working men are probably Conservative; they are fairly content provided that they can obtain work to enable them to provide for themselves and their families, and it is difficult to arouse them to collective action. The promoters of the movement complain of this indifferentism, which they attribute to ignorance, though it may not in all cases be due to this cause, and are determined to advance, by all the means in their power, a thorough organisation of the working classes which they deem essential to the success of the cause.

With the spread of primary instruction, however, the present and rising generation of workmen are learning to feel dissatisfied with their condition, and submit more easily than before to the influence of the leaders of the labour party, whether they be Socialists, Republicans, or Anarchists, who promise them a way out of their present difficulties, and a rise in the social scale. It is but right to remark that, in many of their requirements, the working classes are not without justification.

followed by a circular from the Ministry of Grace and Justice, dated Rome, February 16, 1892, calling the attention of the "Procuratori del Re" of the several districts to the subject, and directing them to report, and requesting the presidents of the Notarial Councils to advise the Notaries not to draw up contracts of the above nature. Ministero di Agricoltura, &c., Bollettino di Notizie sul Credito e la Previdenza; anno X., No. 2, Roma, Febbraio 29, 1892.

In the general movement the rise of the principle of co-operation must not be lost sight of. To some, who have not adopted extreme views, co-operation affords a possible solution of the labour problem; by others it is considered as a palliative only, and the less satisfactory that it tends to make the operatives more content with their lot in the established social order.*

The labour movement, which is becoming a class struggle, as the programme of the "Partito dei Lavoratori" serves to show, contains different sections of thought and action, of which the Socialists are probably the most important. The Italian Socialists are in favour of a legal evolution, though there are, perhaps, some ardent spirits among them who would fain bring about a more violent attainment of their ends. The extreme section of the revolutionists is formed by the Anarchists, a small but turbulent body. They are opposed to the Socialists, and previously in Milan and elsewhere, as now, at the recent Congress of Genoa, there have been struggles for pre-eminence between the two parties. The Republican element is represented by the societies adhering to the pact of Rome; but politics, for the present at all events, seem to be relegated to the second place, and the labour movement in Italy may be considered to have assumed, principally, a social character.†

The internationalisation of labour, or the combination of the labour classes in different countries for the regulation of the working hours and of the rates of wages, as well as, perhaps, for other objects, is beginning to attract attention in Italy as elsewhere, and, it is needless to add, is greatly facilitated by the rapid means of communication and of correspondence which now exist throughout the civilised world.

Inter-
nationali-
sation of
labour.

Eight Hours' Day.

Although in the present condition of the Italian industries the demand for the 8 hours' day cannot be general, the desire for a reduction in the hours of labour is beginning to be felt.

In a recent strike of printers (compositors and pressmen) which occurred at Milan in October last, the question received practical application in a demand for a reduction of the day's work from 10 hours to 9 hours. The 9 hours' day appears, however, to have been in force for some time in the printing offices of Genoa, Bologna, and Mantua. The concession, with some others relating to the tariff of working prices, was granted by the masters, the strike being settled by arbitration. In commenting on the results of the strike the "Tipografo,"* the official organ of

* For notes on co-operation, see pp. 23-47.

† A valuable study on the social movement in Italy by Signor Luigi Sbrojavacca, was published in the "Socialpolitische Rundschau," Heft 2, November, 1891. Leipzig, Druck und Verlag von Fr. Richter.

‡ No. 775, November 15, 1892. The paper is published at Milan.
(1447)

the printers' union says: "The principal and most splendid result of the agitation on the part of the Milanese typographers was the reduction of the working day from 10 to 9 hours. This humanitarian reform, promoted principally to provide work for the unemployed, could not be openly combated by the proprietors. It cost the typographers, it is true, a large part of their other demands, but they are proud of the fact, as it shows that they were not actuated by an exaggerated desire for greater gains, but by the philanthropic feeling of saving from enforced idleness many of their comrades."

The question of the 8 hours' day was also brought before the section of the Printers' Union established at Florence in the beginning of November.* While, generally in favour of the movement, it seems likely that the Florentine printers will for the present take no active steps to bring it forward.

At the Congress of the "Partito dei Lavoratori," held at Genoa, to which previous reference has been made,† the central committee was charged to name a national committee to prepare the manifestation of the coming 1st of May in favour of the 8 hours' movement.

Labour Chambers.

General
remarks.

The agitation, which commenced nearly 4 years ago, in favour of the establishment of labour chambers or exchanges in Italy, has been so far successful that chambers have been provided at Milan, Turin, Piacenza, Macerata, and Venice, while at Rome, Genoa, Florence, Bologna, Verona, Brescia, Pavia, Spezia, and Como active steps are being taken, with, however, varying success, towards their organisation. In other centres, also, preparatory committees are stated to have been formed to study and promote the same object.

The principal ends that the labour chambers are intended to meet are to organise the labouring classes in sections, according to their different crafts and trades; to promote the technical and general instructions of the operatives; to form committees of arbitration for the settlement of disputes arising between masters and hands, and to serve the purpose of a labour bureau in procuring work for the unemployed. For the present, politics are to be left strictly on one side, and the labour chambers are intended to keep within the limits of their ostensible functions. But if, with the advance of the labour movement, greater power should be thrown into their hands, it may become doubtful how long this position of political neutrality will, or perhaps can, be maintained.‡

It may not be uninteresting to note, briefly, the doings of the

* Tipografo ut sup.

† See pp. 16-18.

‡ See p. 17, proceedings of Congress of Genoa.

labour chambers already established, beginning with that of Milan, which is by far the most important.

At pages 76 and 77 of my Report on the Condition of Labour in Italy* I referred to the projected establishment of a labour exchange in this city, and devoted a few words to a sketch of its proposed objects. The chamber was started towards the end of September, 1891, and the first report of the provisional executive committee was published in June, 1892.

At this date the chamber was composed of 33 sections, containing 8,061 members, thus divided:—

Sections and
number of
members.

Sections.	Description.	Number of Members.
1	Masons, bricklayers, and labourers (badilanti)	1,631
2	Stone cutters	102
3	Marble workers	183
4	Paviors (suolini)	46
5	Painters, decorators, and whitewashers	80
6	Gilders and varnishers	195
7	Mechanics, smiths, founders, and tinsmiths	461
8	Workers in bronze	44
9	Jewellers (with (?) engravers on metal)	6
10	Workers in wood, cabinet makers, house and other carpenters, &c.	257
11	Basket makers	42
12	Mat makers	32
13	Bakers	803
14	Paste (vermicelli) makers	53
15	Cooks, waiters, cellar-men, &c.	754
16	Tailors (male and female)	56
17	Dressmakers (female)	87
18	Weavers in silk (syndicate)	76
19	Boot and shoe makers—binders (female)	173
20	Glovers—dyers of glove skins	144
21	Printers (compositors)	707
22	„ (pressmen)	314
23	Stereotypers	42
24	Lithographers (federal union)	216
25	Bookbinders, rulers, &c.	161
26	Vendors of newspapers	25
27	Employés in private administrations	941
28	Messengers and doorkeepers	140
29	Carters and porters	80
30	Curriers	58
31	Comb makers	57
32	Barbers and hair cutters	62
33	Detached members	133
	Total	8,061

Since the date of the report to the end of October, four further sections have been added to the chamber, including zincographers, the workmen in electrical and geodetical apparatus, working furriers, and day labourers (braccianti), while the engravers on metal, previously included with the jewellers, appear to have been formed into a separate section. The total

* Foreign Office, Miscellaneous Series No. 211, 1891.

number of new members is estimated at about 500, and, I believe, was still further increased during the last 2 months of the year.

Offices of
trade
associations.

The trade associations, generally, that have adhered to the chamber have transferred their offices to its official residence in the old castle of Milan. Others, such as the General Association of Operatives, the Society of the Sons of Labour, &c., which are already provided with suitable offices, have contributed by their propaganda to the success of the movement, and many of their members are inscribed in the different trade sections of the chamber, according to their respective professions. The members of the labour chamber are regarded as individuals and not as forming the component parts of any association, thus granting that the section of masons is composed entirely of the Masons' Union, the members are inscribed on the books of the chamber as individual units.

Labour
bureau.

One of the first objects of the provisional executive committee was to establish register offices for those trades and professions in which they could be of use. Four such offices were in regular working order in the month of June—

1. Cooks, waiters, &c.
2. Bakers and paste-makers.
3. Masons and bricklayers, who, formerly, waited to be hired on a bridge crossing the Naviglio, a custom now abolished.
4. Mechanics and workers in wood.

For other trades the Secretary's office provides, with the assistance of the respective sections.

During the first 9 months of its existence, the chamber found employment for 1,397 persons, among whom 259 waiters, cooks, &c., 481 bakers and paste makers, 354 masons, &c., and 132 mechanics. Among the other sections for members of which work was found were the printers (25), bookbinders (30), tailors and dressmakers (14), messengers (4), and various trades (10).

From further statistics with which I have been favoured, it results that, from May 15 to November 30, employment has been found for 1,561 persons (570 temporary and 991 permanent), of whom, waiters, cooks, &c. (173), bakers and paste makers (415), masons, bricklayers and labourers (465), mechanics (201), carpenters (104), printers (compositors and pressmen) (104), painters, varnishers, whitewashers and workers in marble (48), the remaining 51, including boot and shoemakers, tailors and tailoresses, and bookbinders.

The chamber does not guarantee the character of the workmen, but no members are accepted who cannot produce good testimonials from a recent employer. The "fede criminale," or certificate that the bearer's conduct has never brought him within reach of the law, is, however, not exacted, as the chamber desires its abolition, on the ground that, after failure, everyone should be allowed a fresh start in life.

Members
expelled.

Five members were expelled from the chamber, all belonging

to the section of bakers, 4 for their conduct, and 1 because he had become a broker, and was, therefore, no longer a *bonâ fide* working man.

An interchange of correspondence has been organised between the Milan labour chamber and other chambers, or exchanges, with Italian and foreign, to obtain communication of all the notices and statistics that are indispensable for the information of the labour market. Correspondence with other labour chambers.

Under an article of the statutes it was determined by the committee to organise a course of popular conferences on professional subjects and on hygiene. The section of masons established a Sunday course of lessons in geometry. The work of instruction has been continued and enlarged, and, on November 15, the following classes for the instruction of the artisans were opened under competent teachers, who, I believe, render their services gratuitously: Higher arithmetic and elementary algebra; plane and solid geometry and trigonometry; design applied to machinery; writing, book-keeping, and French and German, sufficient for the use of artisans going abroad; the civil and labour rights of working men. Lectures will also be given on mechanics, physics, history, political economy, hygiene, &c. A library is in course of formation at the chamber for the use of all its members. Instruction.

The provisional executive committee have been successful in settling, by arbitration, various disputes that had arisen between masters and hands; this they consider an important part of their functions. Arbitration.

After some difficulty and delay an enquiry office for the poor has been opened at the chamber, which, in a city like Milan, so rich in charitable institutions, will, it is believed, be of great utility. In the course of last winter, thanks to a subscription raised by the "Secolo," the committee were enabled to distribute a certain number of baskets (*canestre*) of food to poor artisan families, as well as to give a Christmas dinner to 70 unemployed working men without homes or families. Charity.

The chamber is supported by an annual subsidy of 15,000 lire (600*l.*) from the municipality of Milan, which also provides spacious premises for its offices; by the annual subscriptions of its members, at the rate of 50 c. (5*d.*) per head, and by some small donations. The total income during the first 9 months of its existence was 19,053 lire (762*l.*), while the total expenditure amounted to 10,532 lire (421*l.*), including over 3,000 lire (120*l.*) for the expenses of first establishment. Finance.

The work of the chamber is stated to have been carried on by the provisional executive committee in perfect union, although among its members were to be found men of various shades of political opinion. Steps are now being taken by the executive of the chamber to unite the Italian labour chambers in a federation. Agreement between members of provisional committee. Proposed federation of labour chamber. Labour chamber at Turin.

The labour chamber at Turin was opened in March, 1892. In October last it contained from 800 to 1,000 members, and had

been able, during the first 3 months of its existence, to find employment for some 500 working men in different localities, while I was informed, during a recent visit to Turin, that 150 labourers were about to be sent abroad. The chamber has had to suffer from internal dissensions. The annual subsidy of 5,000 lire (200*l.*) with a place of residence is stated to be insufficient to cover expenses, the subscriptions of the members not exceeding 50 c. (5*d.*) per head per annum, when regularly paid. It probable that the chamber will be totally reorganised.

Labour
exchange at
Piacenza.

The new institution in this city bears the name of "Borsa del Lavoro," or labour exchange, and from the report of its first year's existence, which I summarise here appears to be doing well, but, naturally, on a smaller scale than that of the Milan chamber.

The initiation for the establishment of the exchange was due to the local society of typographers. The municipality of Piacenza supported the movement by promising an annual grant of 1,500 lire (60*l.*) for five years, and the local savings bank by a subsidy of 500 lire (20*l.*) for the first year, and 300 lire (12*l.*) for the second year.

Associations
adhering to
exchange.

At its opening, the following six associations had adhered to the exchange:—(1) typographers, (2) tailors and working tailors, (3) barbers and hairdressers, (4) cooks and waiters, (5) Federation of the Sons of Labour, (6) Improvement League of Bakers and Pastemakers. Subsequently 5 other associations gave in their adherence, viz.: (7) Popular Society of Mutual Aid and Instruction, and the co-operative societies of (8) typographers, (9) masons, (10) day labourers, and (11) carpenters.

At the date of the report (July, 1892) 6 further associations were in progress of organisation, the co-operative societies of (12) varnishers, and (13) milkmen, (14) the cooks' and waiters' club, (15) the League of Working Tailoresses, (16) the Independent Clerks' Club, and (17) the Federation of the Co-operative Societies of Labour and Production belonging to the city and province of Piacenza.

Number of
members.

The first 11 associations, excluding the society of cooks and waiters, which withdrew from the exchange in April, 1892, form a total of 350 working men members; with the 6 associations in course of formation, it is estimated that 950 new members will join the exchange, 700 of whom form part of the co-operative federation. To obtain the above results, in addition to oral and written propaganda, more than 100 meetings were held.

Labour
bureau.

From June 25, 1891, to the date of the report, places were found for 325 members, of whom 185 were cooks and waiters, and the remainder masons (30), carpenters (10), labourers (80), and porters and various (15).

Instruction.

Popular lessons in French were given during the winter season, as well as a short course of history.

Arbitration.

The committee, named jointly by the Chamber of Commerce and the Labour Exchange, met several times to settle disputes that had arisen between operatives and masters.

The total income of the exchange amounted to 3,071 lire Finance. (122*l.* 16*s.*), of which 2,962 lire (118*l.* 9*s.*) in subsidies from the Municipality and Savings Bank of Piacenza, part paid in advance. The quotas received from the sections for 7 months did not exceed 86 lire (3*l.* 9*s.*). The expenditure amounted to 2,981 lire (119*l.* 5*s.*), of which 1,920 lire (76*l.* 16*s.*) for the permanent employés.

The exchange has endeavoured to make its influence felt by Action of exchange. bringing forward several questions of interest to the working classes, such as the condition of the workers in the rice fields,* the establishment of a public dormitory in Piacenza during the winter months, Sunday rest, and the formation of a society for the protection of released prisoners. Numerous applications have been received at the exchange from persons of all ranks for information on points of law, and with reference to the conditions of the labour market, as well as to obtain recommendations or subsidies. Invited to various fêtes of a strictly labour character, the exchange has adhered to their objects by means of letters and addresses. A representative of the exchange was present at the Italian Labour Congress, held at Milan in 1891, who took part only in the discussions on the 8 hours' question and the foundation of a national working man's journal. At the Congress of Genoa of 1892, some of the societies which have joined the exchange were represented, but not, it would appear, the exchange itself, in its official capacity.

With reference to this chamber I have been unsuccessful in Macerata. obtaining any information.

The labour chamber in this city, the movement in favour of Labour chamber at Venice. which began about a year ago, and to which 14 benefit societies among working men engaged in various industries adhered, has only recently been organised. At the present time it is divided into 20 sections of crafts and trades, of which 12 have been fully organised. The statistics of the chamber are drawn up on the lines laid down in those of the labour chambers of Milan and Turin, with some slight modifications rendered necessary by the differing conditions of the Venetian industries.

The Municipality of Venice has granted the chamber an Municipal subvention. annual subvention of 10,000 lire (400*l.*) and the use of the old Church of the Misericordia for its meetings. As in the other chambers the annual subscription of the members is fixed at 50 c. Annual subscription. (5*d.*) per head.

The sections into which the chamber is divided, with the number of members, on November 30, 1892, are noted below:—

* See pp. 36 and 41.

Sections.	Description.	Number of Members.
1	Building trade: masons, stone-cutters, and labourers ..	292
2	Mechanical arts: mechanics, coppersmiths, blacksmiths, foundrymen, &c. ..	829
3	Printing trade: compositors and pressmen, lithographers, stereotypers, photographers, bookbinders, &c. ..	194
4	Government and private employes and commercial agents ..	143
5	Working bakers: paste makers and millers ..	184
6	Waiters, cooks, &c., employed at hotels, eating houses, and cafés ..	569
7	Workers in wood: carpenters, cabinet makers, modellers ..	430
8	Decorative arts: wood carvers, workers in stucco and marble, gilders, painters, and decorators, mosaicists, upholsterers ..	320
9	Workers in leather and boot and shoe makers ..	162
10	Tailors ..	120
11	Naval constructors: rivetters, ships' carpenters, caulkers, &c. ..	299
12	Various arts ..	70
13	Labourers, porters, &c. ..	246
14	Maritime arts: sailors, bargemen, gondoliers, &c. ..	109
15	Textile arts: males, 120; females, 22 ..	142
16	Patented guides ..	34
17	Salesmen, corn chandlers, and tavern keepers (osti) ..	77
18	Jewellers and allied arts ..	37
19	Barbers and hair cutters ..	21
20	Females belonging to various crafts ..	33
	Total ..	4,311

Since the foregoing list has been drawn up further adhesions have been received, and the number of members now probably exceeds 5,000.

Labour chambers of Florence, Brescia, and Padua.

From the information I have received, it seems probable that the labour chamber of Florence will be opened early in 1893, and the chambers of Brescia and Padua in the course of the year.

Co-operative Associations.

General remarks.

The movement in favour of co-operation is still in the ascendant in Italy, and, although not unaccompanied by occasional failures, its general success appears to be insured. The benefits to be derived from federating the co-operative societies of the same district and, gradually, extending the principle to larger areas has been recognised and carried out in various localities. Among the earlier examples may be cited the unions formed among the co-operative stores established in the Provinces of Novara and of Vercelli in Piedmont. The central committee of the co-operative societies has its residence at Milan. The organ of the federation published in the same city is "*La Co-operazione Italiana*," which appears twice a month and has just completed the sixth year of its existence. It is a useful and well edited publication. The principle of union has also been adopted by

the shopkeepers of some cities to strengthen their protests against the co-operative stores, from the establishment of which their trade has doubtless suffered.

In the present notes I have followed the order of the different branches of co-operation laid down in my Report on the Condition of Labour in Italy,* and have added a few remarks on some associations more especially connected with agriculture. I hope thus to give an idea of the progress of the movement, though I am unable, except for the years 1890-91, to offer any precise statistics of the number of societies that have risen into being since the end of 1887. The figures for these two years are noted in the following table :—

Co-operative
societies
established in
1890 and
1891.

* See pp. 45-62.

ITALY.

TABLE showing the Number of Legally Constituted Co-operative Societies Established in Italy, and their Distribution for the Years 1890 and 1891. (See "La Co-operazione Italiana," No. 59 of 1891, and No. 74 of 1892.)

Description.	Labour Societies.		Co-operative Stores.		Credit including Rural Banks.		Societies of Production.		Building Societies.		Insurance Societies.		Various.		General total for two Years, excluding Various.
	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	
Piedmont and Liguria ...	6	4	19	22	3	12	5	9	2	6	4	4	...	...	95
Lombardy ...	20	15	20	24	4	5	5	12	...	...	...	2	...	...	107
Venetia ...	41	15	6	2	4	8	3	4	...	1	2	...	2	...	86
Emilia ...	67	66	11	7	5	3	10	4	3	...	...	...	...	...	166
Tuscany ...	6	5	12	18	1	4	2	4	3	...	...	...	...	...	55
Marche, Umbria, and Latium ...	12	10	6	4	11	10	8	5	1	1	...	1	...	...	69
Southern provinces	8	12	5	14	20	11	...	...	...	...	...	...	...	...	...
Sicily and Sardinia..	...	...	...	...	...	...	...	5	1	2	2	1	...	...	81
Total ...	160	117	78	91	48	53	33	43	10	10	8	8	11	10	659

Other societies, not legally recognised, were formed during the two years in question, principally, it would appear, co-operative dairies and stores. The co-operative societies closed during 1890-91 numbered 36, of which 17 credit societies (13 in the southern provinces), 6 stores, 7 societies of production, 5 building societies, and 1 society of insurance.

It is probable that the total number of co-operative societies now existing exceeds 3,000,* of which about half are not legally constituted. These may be very approximately divided into about 1,000 co-operative dairies, 500 popular and rural banks, 500 co-operative stores, 500 associations of day labourers, the remainder being composed of industrial, building, and insurance societies, agricultural syndicates, &c. In the spring of 1893 the fifth congress of the Italian co-operative associations will be held at San Pier d'Arena (Genoa), on which occasion it may be hoped that full official statistics will be published.†

Number of
co-operative
societies.

Credit.

Notwithstanding the financial crisis the formation of co-operative banks is on the increase, as the figures noted in the previous table serve to show. Their management is not always easy, and failures have occurred and are still occurring,‡ but the movement in their favour seems to have taken root.

Co-operative
banks.

The rural loan banks,§ first established in Italy in 1883, had increased at the end of 1891 to the number of 51, thus distributed among the different regions of the kingdom:—

Rural loan
banks.

Region.					Number.
Venetia ..	..	..	..	..	42
Lombardy ..	..	..	..	..	6
Piedmont ..	..	..	..	..	5
Tuscany ..	..	..	..	..	1

Some 20 more were founded in 1892, but possibly a few of the earlier banks may have ceased to exist. I have been unsuccessful in obtaining any precise information on the subject.

* This is exclusive of the benefit societies, which in 1887 numbered 4,871.

† See also an able monograph on co-operative societies in Italy, by Signor Luigi Sbrojavacca—Sonderabzug aus Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft in Deutschen Reiche. Herausgegeben von G. Schmoller; Verlag von Duncker und Humblot in Leipzig. Published in 1892.

‡ As, for instance, the "Banca Co-operativa" of Milan, established by the "Consolato Operaio," and which has recently had to close its doors.

§ For information about the rural loan banks, "La Co-operazione Rurale: Periodico dedicato alla diffusione delle casse di Prestiti dei Circoli agrari, &c., istituito nel 1885, da L. Wollemborg," published monthly at Padua, may also be consulted.

In the beginning of 1892, the savings bank of Parma formed a committee for the purpose of promoting a provincial committee of propaganda in favour of establishing rural banks, placing the sum of 1,000 lire (40*l.*) at its disposal. The first rural bank in the province of Parma was founded in the month of April at Torrecchiara, in the commune of Langhirano Parmense. On June 2, an influential regional committee was also formed at Venice, for the promotion of rural loan banks.

Condition of
peasantry in
Lower
Venetia.

A short account of the condition of the peasantry in Lower Venetia (provinces of Padua, Venice, and Vicenza) will serve to explain the reasons which induced Signor Leone Wollemborg, their active promoter, to start these banks in the province of Padua.

In the provinces named above the farms are divided into two classes termed respectively, "Campagne" and "Chiusure." The tenants of the Campagne are entitled Massariotti. Their farms are from 20 campi to perhaps 90 campi (about 16 acres to 74 acres) in extent. The Chiusure have a smaller area, from $\frac{1}{2}$ campo to a maximum of 10 campi (about $\frac{1}{2}$ acre to 8 acres). The tenants are termed Chiusuranti. The tenancy is of a mixed form, part of the rent is paid in cash, part in kind, and some of the products, such as the grapes and mulberry leaves, are divided on the metayer system.

The "Contadini," or peasants, till the farms with the assistance of their families, and employ little if any hired labour. The tenancy is annual, but is rarely cancelled. Should a family decrease in number and be unable, in consequence, to cultivate their farm, an exchange is made with a more numerous household and the first migrate to a smaller holding. These exchanges are often made at the request of the peasants themselves.

After the union of Venetia with the Kingdom of Italy, from 1866 to 1880, the times were prosperous and the prices of land and of rents increased. Then came the agricultural crisis. Many among the small farmers were compelled to sell their cattle to pay their rent, the rate of which was too high to enable them to realise a profit, and rents have not yet fallen to the level of the prices of the agricultural products. The peasantry are fed from the produce of their farms, but all extras are provided for by accessory industries, such as the raising of stock, which still forms one of their principal resources, pig and poultry breeding, &c. These undertakings require a certain amount of capital, which the peasants, in general, do not possess. The funds are, therefore, supplied by money lenders, who are known under the name of "Seraffi" in the lower Vicentino, elsewhere as "Usuraj." The money-lenders sometimes belong to the middle classes, but are often peasants who have made a little money, and who prefer an easy life to continual hard work. The interest on the money lent frequently amounts to 100 per cent., and is occasionally higher, as, for instance, on advances of Indian corn, of which enough is generally not grown on the farms to last throughout the year. The quantity advanced to the lender has to be repaid in

kind, and has often to be bought at high rates, so that, at times, the interest amounts to 200 per cent.

Goose breeding is a long established industry in the provinces of Padua, Treviso, and Venice. The peasant receives from the money-lender an advance of 50 lire (2*l.*) for the purchase of 50 goslings. When, in the course of 5 or 6 months, the geese are fattened, the peasant farmer, in addition to the repayment of the loan in cash, gives the money-lender one fat goose, worth 5 lire (4*s.*), out of every 10, or at the rate of 100 per cent. per annum. If any geese die during the fattening the loss is borne by the peasant.

In the contract of "Soccida," under which a third party supplies cattle to the farmer, receiving half the profits derived from the raising of stock and some other special dues, the gain to the lender is reckoned at about 40 per cent. The contract may be fair or not, according to circumstances, but, in many cases, it presses very heavily on the farmer, who has to bear all the losses, while dividing the profits.

Signor Wollemborg observed that the peasants, notwithstanding the high rates of interest they had to pay to the money-lenders, generally contrived to make some profit. He, therefore, came to the conclusion that, provided the rate of interest were fair, it need not be too low. He also watched the conduct of the money-lenders who, belonging to the locality where they practised, knew all about their clients. They personally superintended each operation, carried the peasant off to market to sell his geese, and even accompanied him to the bank and became his surety when their client borrowed money in that form; in short, they had the borrower always in hand, as their interest evidently dictated.

In founding the rural loan banks, Signor Wollemborg kept the above principles strictly in view, viz., to fix a fair rate of interest, which the peasant would not object to pay, and to hold him in strict watch to see that he made a proper use of the loan.

The members of a legally constituted rural bank are jointly and severally responsible. Members only can receive loans. The capital has to be borrowed, generally from a savings bank, at which a more modest rate of interest and fewer formalities are demanded than at a popular bank. To the bank interest so much is added for expenses. The rate of interest to be paid by the borrowing member is fixed by the members themselves in general meeting, after they have decided that the loan applied for may be safely granted. The borrower now comes under the constant surveillance of the whole body of his co-partners, to such an extent, indeed, that when peasants have emigrated, leaving debts behind them, the money owing to the rural banks has always been paid. The morality induced by the bank is, in this instance at least, rather onesided and interested, the members feeling no call to protect third parties from loss.

Joint responsibility of members of rural banks.

The rural banks are only open twice a month for business.
(1447)

The books, drawn out in as simple a form as possible, are kept by some friend of the movement, the communal secretary, for instance, or the parish priest. The meetings are usually fully attended; the peasants have no connection with political life and the bank is their one external interest. They like to say they are going to their meeting, and after work talk together of their bank and its doings.

The rural loan banks are humble institutions, but the movement, I venture to believe, is in the right direction. They have already affected some good, and, as their influence spreads, it may be hoped that the benefits they are able to confer, under proper regulations, will be generally recognised.

Productive Societies.

Labour
societies.

Labour societies, as has been seen, are increasing in number. To ensure success, however, it appears that they require to be under competent technical management. For these societies also the advantages of federation are recognised. Among the new associations, some, it is said, have been formed by contractors with a view to avail themselves of the concession, granted by Government to co-operative labour associations, to tender for public works without furnishing security.* Such societies, co-operative only in name, must tend to the disadvantage of the bonâ fide labourers' unions.

From a report recently issued by the Ministry of Public Works† on the contracts given out to co-operative societies from May, 1888, to December 31, 1891, it results that the sum total did not exceed 5,500,000 lire (220,000*l.*). The societies themselves were not able to supply all the labour, the greater part of the works being executed by non-members. In many instances, moreover, the societies were merely a "prête-nom" for some contractor, thus confirming the remark made above, while, as a rule, the technical and administrative direction, as well as the quality and regularity of the work, left much to be desired. From these censures exception, however, is made for the greater part of the Romagnole societies, of those belonging to Finale, in Emilia, and of the Co-operative Society of Roman Masons. The works entrusted to these societies are stated to have been generally carried out both well and quickly.

Condition of
labourers in
the province
of Mantua.

In the lower zones of the province of Mantua, the agricultural conditions are very different from those existing in the districts of Venetia previously alluded to. There are some large proprietors, but the land, generally, is in the hands of small and medium owners. The large estates are rented by speculative

* Law of July 11, 1889, No. 6216, art. 4. Regulations of August 22, 1889, art. 10. Communal and Provincial Law, February 10, 1889, art. 157. To be further modified by a Bill now before Parliament. See note, p. 39.

† "La Co-operativa Italiana," No. 83, December 15, 1892. Summary extracted from "Messaggero" of Rome. I have not yet been able to see the official report.

farmers, who take the place of the owner, and hire labourers to till the land. The smaller farms are usually cultivated by labourers under the direction of the owners, the smallest plots by the owners themselves. The labourers employed are of two classes:—(1) Hands permanently retained on the farms, whose subsistence, if frugal, is insured; and (2) casual day labourers, a numerous class, to whom I am specially referring here.

In 1882, the condition of the casual labourers, who generally reside in poor villages, was described in an official report* in dark colours. It was stated that they were only able to obtain work for about 7 months† of the year. Their daily wages were estimated at the rate of 1 lira (10*d.*) in winter; 1 lira 25 c. (1*s.*) in spring; and 1 lira 50 c. (1*s.* 2½*d.*) in summer.

For urgent works, such as reaping, mowing, digging, &c., their wages rose to 2 lire (1*s.* 8*d.*), and of late years to 3 lire (2*s.* 5*d.*) per diem. For ditching, planting, sulphuring the vines and the like, the work was given out on contract or by measure, but the daily earnings were not much in excess of the ordinary rates of payment. When, in summer, the labourers receive food, their wages are reduced by about one-third. In former times wine was given in addition during summer work, but the vine disease put an end to this custom.

The wages of the women, nearly all of whom work on the fields in the lowest zone of the province, vary from 50 c. to 60 c. (5*d.* to 6*d.*) in winter, to 85 c. (8½*d.*) and 1 lira in summer, without food. For urgent works, 1 lira 25 c. (1*s.*) to 2 lire (1*s.* 8*d.*) are now paid. A lad of about 15 years of age receives woman's wages.

For working in the rice-fields, casual labourers, mostly women and children, are hired by means of a "Caporale," or ganger, who works at the head of his squad. The rates of wages only exceed the usual proportions by a few centimes.

In order to ensure a sufficient supply of labour in times of pressure it is customary for the owners to grant to a certain number of casual labourers, in proportion to the wants of the estate, the exclusive cultivation of about 1 hectare (2·47 acres) laid down in Indian corn, the products being divided in the ratio of one-fifth to the labourer on the poorer lands and of one-seventh on the richer lands.

The condition of the peasantry, owing to bad seasons and other causes, having become intolerable led to an extensive movement for a rise in wages which broke out in the province in the beginning of 1885.‡ The results were somewhat favourable to

* Atti della Giunta per la Inchiesta Agraria e sulle condizioni della classe agricola, vol. VI., fascicolo IV., p. 743. X^{ma} Circoscrizione. Provincia di Mantova. Roma, 1882.

† Perhaps rather a low estimate, and not taking into account employment on public works. Other authorities give 270 days' work as the present average. It must be taken into consideration that the condition of the landowners—especially of the small proprietors under heavy taxation—is, also, not altogether enviable.

‡ See p. 8 (strikes).
(1447)

the labourers and a slight increase of wages was obtained, but, even now, I am informed, that, unless they can obtain credit from the village shop-keepers in the slack season, they are compelled to eke out their existence by rural thefts. In the lower districts of the province all the labourers are described as having adopted socialistic opinions, which is not the case in the upper zone, where their condition is altogether different.

One result of the rising in 1885 has been the movement in favour of co-operative labour societies, undertaken by the friends of the labourers, in order to unite their forces. The task of actual organisation appears to have commenced in 1889. In 1890 several societies were already formed and entered into a federation which, in 1891, numbered some 20 legally constituted societies. During this period the labourers, on their own account, were founding co-operative stores which, it appears, have also been placed on a legal footing, though their general success, from want of means, is doubtful. It was next proposed that all the benefit societies, of whatever nature, existing in the province, and which, perhaps, contain altogether some 8,000 or 9,000 members, should be united in a general federation. This was effected in October, 1891, but I have been unable to obtain any information as to the results.

I may mention here an experiment tried by a liberal minded proprietor of the province, who granted a rice-field to be cultivated by the labourers on the co-operative principle. It is stated to have proved a success. The owner's profits increased 50 per cent. over previous rates, while the rise in the labourer's earnings was estimated at from 100 per cent. to 150 per cent.

Work in the
rice fields.

The unsatisfactory condition of the workers in the North Italian rice-fields is attracting attention at the present time. In the beginning of 1892 the president of the federated labour societies of the province of Modena addressed a circular to the labour associations of the neighbouring provinces, with respect to the weeding (*mondatura*) of the rice-fields in the district of Lomellina (Pavia), a work which occupies a large number of labourers, principally women and children, during the early summer. They are hired by contract in the provinces of Piacenza, Parma, Reggio Emilia, Mantua, and Cremona, and conducted to the scene of operations. The contractors or gangers, who are paid by the proprietors so much per hand, provide the labourers with food, which is stated to be often both unwholesome and insufficient, and lodging, if the hay lofts in which they are packed without regard to age or sex, may be so termed. After all expenses are deducted and the wages paid, which amount to 85 c. ($8\frac{1}{2}d.$) for adults and about 65 c. ($6\frac{1}{2}d.$) for girls, the profits to the contractors are estimated at from 15 c. to 25 c. ($1\frac{1}{2}d.$ to $2\frac{1}{2}d.$) per hand per diem.

To secure this profit to the labourers and, at the same time, improve their condition, the president of the federated labour societies of Modena proposes that the societies themselves should undertake the work on their own account at the rate of 1 lira

60 c. (1s. 4d.) per hand, per diem, the proprietor providing the necessary cooking materials and separate lodgings for the two sexes on the farm, with a supply of clean straw. For every 100 hands there are to be 5 minors, but no children under 15 years of age are to be engaged. This proposal appears to have been not unfavourably received by some of the proprietors interested, but the scheme has not yet been put into execution.*

In September last the King of Italy, who, as their patron, Labour Society of Ravenna. had been solicited by the president of the Society of Labourers of Ravenna to assist them in obtaining a loan on easy terms, responded by a gift of 50,000 lire (2,000*l.*). "Do not," said His Majesty, "repay me, but when you can, place the sum to the account of a pension fund, which it is your duty to institute." The King, it appears, continually employs the labourers belonging to this society on works connected with his estates, and has expressed his thorough satisfaction with their conduct.†

Among other societies established in the province of Ravenna Of Budrio. that of Budrio is stated to be well managed under the direction of a competent civil engineer.

In the month of November (1892) a meeting of 14 labour Federation of societies was held at the Chamber of Commerce of Rovigo, for labour societies at the purpose of forming a federation. A committee was appointed to draw up the regulations of the proposed union, maintaining, however, the autonomy of the several societies.

A petition was also addressed to the president of the Chamber of Deputies, with a view to obtain from the Ministry of the Treasury an enlargement of the concessions granted to labour societies for carrying out State, provincial, and municipal contracts, and from the Ministry of Public Works, the removal of the difficulties met with in the concession of and payment for works, owing to which the beneficent effects of the law are often frustrated; that an enquiry should be made into the means of applying co-operation to agriculture, in order to promote the colonisation of waste lands in various parts of Italy; that all working men's benefit societies should enjoy, by law, the exemption from the "Tasse di Consumo"‡ granted to co-operative societies; and that the proposed institution of boards of arbitrators ("collegi di probiviri") should be extended to the rural labouring population.§

Co-operative Societies among Masons and Bricklayers.

In general, these associations appear to be doing well. As an Co-operative example, I may cite the Society of Masons of Milan, which, for Society of Masons of Milan.

* La Co-operazione Italiana, No. 62, January 30, 1892, p. 17.

† "Nazione," Florence, September 10, 1892

‡ See p. 40.

§ La Co-operazione Italiana, Anno VI., No. 88, December 15, 1892, p. 128. (1447)

the last 2 years has been employed by the municipality of that city on works connected with the new communal cemetery at Musocco. I am informed that the society has carried out its contract with exactitude and fidelity, no disputes have arisen, and the quality of the work has left nothing to be desired. This society, which was founded 5 years since, now contains 500 members, with a capital of 27,000 lire (1,080*l.*), nearly all paid up and divided into 1,100 shares. The reserve fund amounts to 15,000 lire (600*l.*), and the provident fund to nearly 10,000 lire (400*l.*)*

Of Mantua. At Mantua the Co-operative Society of Masons had, in 1891, obtained some contracts from the military authorities.

Of Bologna. At Bologna, owing to a defalcation of funds, the Masons Association had encountered difficulties which it is gradually overcoming. The municipality has been able to give the society several contracts which have been satisfactorily carried out. Having no present capital, however, the society labours under certain disadvantages, such as having to pay interest on materials, for the hire of barrows, &c.

Industrial Societies.

Industrial societies.

In these societies, as I had already occasion to point out in my previous report,† if, on the one hand, co-operation is easier than for the labour societies, as they may hope for constant work throughout the year, on the other hand, difficulties arise from the complex nature, both technical and commercial, of the undertakings.

Trades represented in new societies.

Among the purely artisan societies, conducted without capital and with no unity of direction, failures are not infrequent. The Italian operative, moreover, is often distrustful, and not sufficiently educated always to understand his real interest. Still the movement goes on. Of the 76 new societies founded in the years 1890-91, 9 arose among workers of marble and ceramics, 10 among mechanics, blacksmiths, and carpenters, 7 among printers, 7 among shoemakers and curriers, 5 among tailors, and there were 2 laundries. Of the 36 remaining, I have no notices. During the same years 7 societies are reported to have ceased work, among which was a society of omnibuses, a laundry, a co-operative dairy, a woollen mill, and a society of coopers.

Societies among printers.

Of typographical societies there appear to be some 50 in all Italy. They are to be met with in most of the principal cities. The typographers are naturally among the best educated workmen, but, even among them, there have been failures.

Society of Mechanics at San Pier d'Arena.

As a flourishing co-operative society may be cited that of the mechanics at San Pier d'Arena, in which His Majesty the King of Italy has recently taken shares. I am informed also that at

* *La Co-operazione Italiana*, No. 80-81, 1-15, November, 1892, pp. 182-183.

† Page 50.

Chieri, at Prato, and in the district of Biella, there are various Weaving co-operative weaving societies that are quite able to hold their own. societies.

At Venice, a small society of mechanics was formed among the workmen who had fallen into the ranks of the unemployed during the crisis of last winter. The municipality entrusted to them some unimportant works, which they executed satisfactorily. The civic authorities now propose to give the society a contract to erect a small iron bridge, and possibly some further work. The co-operators have, however, had the good fortune to meet with a respectable civil engineer, who has volunteered to be their representative. Society of Mechanics at Venice

The principle of forming co-operative societies into syndicates is beginning to obtain. At Turin recently seven small co-operative societies, including the file makers (80), carpenters (30), mechanics (20 or 30), weavers (?), and three others were united in this form. Syndicates of co-operative societies. At Turin.

In order to facilitate the action of co-operative societies of production and labour, a Bill* has recently been introduced into the Italian Parliament by the Minister of the Treasury to further modify the law of public accounts. The Bill provides that contracts, by auction, or private tender, for the execution or maintenance of public works, or for the supply of stores (furniture), may be received from co-operative societies of production and labour, legally constituted, and composed principally of operatives, when the total expenditure on each contract does not exceed 200,000 lire (8,000*l.*). As security for the completion of the contract 10 per cent. of the pro rata payments will be retained, to be returned when the accounts are closed. Legislation.

Thus, in part, at all events, the wishes expressed by these societies are being taken into consideration by the Italian Government.

Co-operative Stores.

The progress of the co-operative stores, especially of those founded by the middle classes, is very satisfactory. Among the stores established for the benefit of the working classes, occasional failures arise from want of capital and of administrative knowledge, and, more especially, from the fatal system of granting credit to the members whenever it prevails.† In the poorer Co-operative stores.

* *Legislazione XVIII.*—1 Sessione, 1892. *Relazione della commissione sul Disegno di Legge presentato dal Ministero del Tesoro, interim delle Finanze, col concorso del Ministro dell' Interno, Presidente del Consiglio dei Ministri, col Ministro dei Lavori Pubblici e col Ministro di Agricoltura, Industria e Commercio, nella seduta del 15 Dicembre, 1892. Modificazione dello Articolo 4 della Legge 11 Luglio, 1889, No. 6216, riguardante gli appalti dei Lavori Pubblici alle società co-operative di produzione e lavoro. Seduta del 20 Dicembre, 1892.*

† The point is one of great difficulty, as the working men, being paid weekly or fortnightly, or, perhaps, being out of work, have often no cash in hand with which to make their purchases. The exigency is, sometimes, partially met by credit being granted up to about four-fifths, or rather less, of the amount of the member's paid up shares.

country districts the movement, unless skilfully directed, is perhaps premature. The peasants have no business experience; during the winter months they have usually no means to make ready-money purchases, and, if they are allowed to buy on credit, the result, as noted above, is fatal.

Co-operative
associations
among the
middle
classes.

Among the middle classes in the principal North Italian cities, and especially at Milan, co-operative societies have been formed for a variety of useful purposes, such as starting pharmacies, insurance societies, schools for music, &c. Associations have also been founded to enable members and their families to take their summer holidays at the seaside, or in the mountains, at reduced rates.

Duties on
retail sales of
alimentary
products.

Among the questions of special interest to co-operative stores in Italy is that of the exemption from the "Tasse di Consumo" (duties on the retail sale of articles of consumption) which was granted by article 5, inclosure L. of the law of August 11, 1870,* regulating the octroi and other similar duties.†

Meeting of
federated
co-operative
and benefit
societies of
Piedmont.

In October last (1892) a meeting of the federated, co-operative, and benefit societies of Piedmont was held at Novara. The resolutions passed on the above and cognate points of legislation in favour of the working classes, which I note here, will serve to show the lines on which the movement is running.

The meeting desired:—

(a) That the law on the "Tasse di Consumo," which affects the consumption of articles of primary necessity, should be modified in the sense—

1. That exemption from the duties granted by the law should pertain not only to the co-operative societies constituted in conformity with the provisions of the Commercial Code, but to all benefit societies, juridically recognised under the law of April 15, 1886, No. 3818 (3rd Series), and, in general, to all working men's societies, although established without legal recognition.

2. That the sale of stores to members at cost price, with a percentage to cover expenses, should not be considered as a commercial transaction, even in those cases in which the profits accruing are devoted to the society's benefit or reserve funds, or to the payment of legal interest on the capital, or distributed among the members as savings, or destined to reduce the prices of the stock in hand.

* See Leggi, Regolamento, istruzioni sui dazi di Consumo, con brevi illustrazioni. Milano, E. Sonzogno, Editore, 1889.

† The 8,000 and more communes of Italy are divided into two categories—closed and open. The closed communes number less than 200, but include the large cities. In these communes the octroi duties are levied at the gates and there are no exemptions from duty, both rich and poor pay alike. In the open communes, duties are imposed on the retail sale of alimentary products, including wine and spirits. Wholesale purchasers of articles of consumption for family use are exempt, and the duty thus falls entirely on the shopkeepers and the poorer classes. Co-operative stores, under the provisions of the law above mentioned, have been placed on the footing of families making their purchases wholesale and distributing them among the members. This privilege conferred on the stores is the cause of frequent disputes between the societies and the farmers of the taxes.

3. That it shall be lawful for several societies existing in the same commune to have a common store.

4. That the distribution of stores may be made to any person belonging to the member's family.

5. That the stores may be consumed in any place, except in the warehouse and on the society's premises.

6. That the penal responsibility for infractions of the laws on the "Tasse di Consumo" be limited to the warehouseman, or agent, and to the purchaser, saving actions under common law.

(b) That the law on the income tax* (*Ricchezza mobile*) be reformed in the sense that all the incomes, inscribed under categories B and C (trades and professions) of less than 600 lire (24*l.*) be exempted, and that, for incomes above this amount, the quotas be graduated in progressive proportion.

(c) That, in all contracts for public works, a minimum rate of wages be fixed for the different categories of operatives per hour of labour.

(d) That the insurance of workmen against accidents incidental to labour be made obligatory by law, and that the responsibility of the insurer should cease only in case of fraud on the part of the insured.

(e) That the law on the labour of children in factories, February 11, 1886, No. 3657 (3rd Series), be rigorously carried out, that the inspection of factories, of quarries, and of mines, in which women and children are employed, be entrusted to the provincial doctors (Government officers placed at the head of the medical service of a province), and that the agents of the public force be empowered to report contraventions of the law.

(f) That proprietors and contractors shall be prohibited by law from employing girls under 15 years of age, or women in a state of pregnancy, in weeding ("mondatura") the rice fields, and that they shall be required to furnish separate lodgings for the labourers of the two sexes.

(g) That, by means of modifications of the institution of arbitration (Code of Civil Procedure, Chap. II., articles 8-34), or by the formation of syndical chambers, or of colleges of arbitrators, the conciliation and settlement of disputes between urban and rural workmen and their employers may be easily and economically provided for.

The meeting further proposed that the federated societies should support candidates for election to Parliament who should promise to assist in carrying the above resolutions into effect.†

Co-operative House Building Societies.

The erection of workmen's dwellings is going on satisfactorily, and the movement is extending. The Società Edificatrice (Co-^{Artisans' dwellings.}

* See Legge e Regolamento per l'applicazione dell'imposta sui Redditi di Ricchezza Mobile. Roma, stamperia Reale, 1877.

† La Co-operazione Italiana, Anno VI., No. 81-82, Milano, 1-15 Novembre, 1892, p. 182.

operative Building Society) of Milan is continuing its good work with increasing success. I am informed that the possession of his own cottage, generally, converts a drunken and spendthrift workman into a sober and frugal householder—very tenacious of his legal rights. I had occasion, recently, to visit one of the groups of working men's cottages erected at Milan and was struck with the bright cheerfulness of the women who were attending to their household work, and the general air of home life that prevailed.

The Agricultural Co-operative Societies.

Agricultural
co-operative
associations.

The rise of co-operative associations directed to the improvement of agriculture has, perhaps, only an indirect influence on the labour question. These associations, in the first instance, are principally unions of landowners and of members of the upper and middle classes; but, in a country like Italy, in which many small proprietors exist in direct contact with the soil, and where, in many parts, the metayer system prevails, they cannot but have, if properly conducted, a wide spreading influence, which may help in time to alleviate the condition of the labouring rural population.

I propose only to indicate here one or two of the main features of the movement which may serve to point out the direction towards which it is tending.

Syndicates.

These associations, the utility of which has been proved in France, are now gradually making their way in Italy, and are to be met with at Turin and at Piacenza, where they were first established at Padua, at Udine (as a committee of the important Friulan Agrarian Association), at Bergamo, Voghera, Mortara, in Milan, and, it may be, elsewhere.

Syndicate of
Milan.

The Syndicate of Milan was only founded in 1892, and has already showed signs of activity in promoting a small sample exhibition of agricultural products and implements. From its statutes, as those most recently published, I have summarised the principal objects which syndicates have in view. These are to purchase on account of members, or of third parties, or, if necessary, on their collective account, goods ("merci"), seed, manures, agricultural implements and machines, live and dead stock, &c., for distribution, either on sale or hire, at discount prices; to promote the sale of agricultural products, either privately or by contract; to establish dépôts, warehouses, and cellars for the purchase and sale of agricultural products, either at home or abroad; to encourage the improvement of breeds of cattle, especially by the introduction of good sires; to co-operate in the amelioration of the cheese and butter industry; to pay special attention to the railway tariffs for the carriage of agricultural products, and to see that adulterated products are not introduced into the country from abroad.

Among its other functions, the Milanese Syndicate proposes to investigate all the measures of economic and legislative reform

that may be required in the interests of agriculture, especially as regards the lightening of the burthens on land; to promote instruction in practical agriculture by means of conferences, publications, libraries, schools, free studentships, &c.; to promote and encourage trials of cultures, manures, improved implements and machinery, and of any other means tending to facilitate labour, and to reduce the cost and increase the price of production; to encourage the foundation of economic institutions, such as societies of agricultural credit, societies of production, benefit and insurance societies, especially against accidents incidental to labour; to compile notices of the customs existing in particular localities; provide arbitrators for the arrangement of rural disputes, and, finally, to undertake the periodical supplies of food required by families of the peasant farmers.

For each branch of its work, either principal or accessory, the syndicate will keep a separate financial administration and assign special funds.

The capital of the Milanese syndicate is formed of—(a) an unlimited number of shares of 25 lire (1*l.*) each; (b) a reserve fund; (c) special funds instituted for determined operations. The funds of the association are to be invested in Government or guaranteed stock, but 10 per cent. of the capital and 20 per cent. of the reserve fund may be employed in the purchase of shares of co-operative societies having analogous aims with those of the syndicate. Proprietors and tenants of rural estates, agriculturists, and persons exercising trades or professions strictly connected with agriculture are admitted as members. Membership is not confined to the male sex, but women cannot become office holders. Co-operative societies and corporations are, also, admitted to membership on their appointing a personal representative, who, however, is not eligible for office. No member can hold more than 200 shares. The division of the profits will be made as follows:—The interest on the shares can, in no case, exceed 6 per cent. of their real value, or 40 per cent. of the total net profits. Of the balance, 18 per cent. is placed to the reserve fund, 5 per cent. to a benefit fund for the society's agents, 2 per cent. is at the disposal of the council for propaganda, 5 per cent. is granted as an indemnity to the members of the council, and 70 per cent. is to be returned to members and non-members, in proportion to the business they have transacted through the syndicate.

This association was constituted at Milan in the month of July, 1891, as a Co-operative Agricultural Society. The objects or which it was started are thus described in its statutes:—
 (a) To purchase lands, especially such as are lying waste in any region of Italy, colonising them and undertaking their direct cultivation according to the most improved methods and under the most remunerative cultures. At the first general meeting of the association, held at Milan on December 21, 1892, the society was further authorised to assume "emphyteutic" and other tenancies, and to reconvey to the tenants ("coloni"), under

Co-operativa
Agricola
Italiana.

special contracts, the cultivation of such lands as it does not intend to take in hand directly; (*b*) to undertake on account of its members the reformation, agricultural improvement and works of refertilisation of estates; (*c*) to promote the introduction of new cultures of recognised utility; (*d*) to develop and exercise the industries accessory to agriculture; (*e*) to supply the members, even on credit under solid guarantees, with agricultural implements and machines, plants, and seed, manures, cattle, and all the materials and stock required on an estate, providing, if requested, instruction and experienced cultivators; (*f*) to establish, if necessary, depôts and agencies for the sale of its own products, as well as of those of the members; and, lastly, (*g*) to study every means of agricultural improvement, publishing the results, in order to advance the progress and increment of Italian agriculture, and, at the same time, ameliorate the material, hygienic, and moral conditions of the rural labouring population.

The members. All persons not legally incapacitated may belong to the association. At the first general meeting, mentioned above, the statutes were further modified so as to permit the entry into the society of all corporate bodies, whether private or public, charitable institutions, co-operative and friendly societies, banks, &c., provided that they appoint a duly qualified representative, and submit to certain fixed conditions.

Capital. Every member pays an entrance fee of 5 lire (4s.). The capital of the association, which is unlimited, is formed by—(*a*) the quotas of the members or provident books (*"libretti di previdenza"*), with which each member is supplied on joining. Each book, when fully paid up, represents a subscription of 540 lire (21*l.* 12s.); (*b*) the rents and profits derived from the society's estates; (*c*) the amounts acquired by the society in case of default, or expulsion, of a member; (*d*) special funds constituted for determined objects, and donations; (*e*) the reserve fund, to which 10 per cent. of the annual profits are assigned.

The present capital of the association amounts to over 200,000 lire (8,000*l.*), and is stated to be daily increasing.

Members only admitted to employment. Members only, of whom there are now 350, are admitted to the employment, permanent works and operations of the society. The quotas due by the peasant farmers will be assured by deductions from their wages.*

Provident books. The provident books may be paid up, in 15 years, by anticipated monthly instalments of 3 lire (2s. 5*d.*). The books are nominal and personal, and cannot be transferred to third parties. No member is permitted to subscribe for a total amount exceeding 5,000 lire (200*l.*), and no dividend will be distributed until a period of 15 years has elapsed from the date of emission of each book.

Division of profits. At the end of every year, out of the net profits of the exercise, 5 per cent. will be divided among the members of the council of administration, which forms the executive head of the association

* See also over.

and is established at Milan; 10 per cent. will be assigned to the reserve fund, and a sum, to be fixed by the council of administration and approved in general assembly, will be annually devoted to facilitate the payment of their respective quotas by the employés, peasant farmers, labourers, and other operatives depending on the society.

During the first 15 years the balance of the net profits will be accumulated and capitalised, together with the annual quotas received, for the development of the society's operations and the formation and progressive extension of the collective estates. At the end of this period the profits, exclusive of the assignments above-mentioned, will be divided among the members whose books have been fully paid-up for the previous 15 years. The distribution of the annual profits will be made to the members within the limits of their respective books fully paid-up. On his demand a member's quota of capital and profits may be liquidated and converted into a life annuity, after which he will no longer have any claim on future dividends.

The association has recently purchased, and has already taken Estates purchased by the association. in hand at Surrigheddu, near Alghero, in Sardinia, an estate of some 450 hectares (1,115 acres) in extent. The property, of which half is uncultivated and the larger portion of which is situated in the plain, is divided by the provincial road running between Alghero and Sassari, and is only distant 6 kiloms. ($3\frac{3}{4}$ miles) from a sea port and a railway station. The soil is well suited for growing wheat and grass, and there is a good supply of running water. On the farm are plantations of mulberry and olive trees, with large and small stock, sheds, and solid buildings.

A Co-operative Agricultural Society among working men, on a more limited scale than the above, was legally constituted on May 12, 1892, through the initiative of the local popular bank at Arceto, in Emilia, with the principal object of acting as an Working Men's Co-operative Agricultural Society. agrarian union for the diffusion of agricultural instruction, acquiring, working, and improving lands, assuming contracts for works,* &c.

Co-operative Farming Associations.

A beginning has been made towards the formation of co-operative farming associations in Italy, but the movement is only in its Co-operative farming associations. infancy.

On November 11, 1887, an association was formed at Cittadella, in the province of Cremona, among 30 peasants, for a joint At Cittadella, province of Cremona. cultivation, on a fiduciary tenancy, of a farm ("podere") of 110 hectares (271 acres) in extent, belonging to Signor Giuseppe Mori. The capital of live and dead stock was lent to the association by the owner, at a moderate rate of interest. The Comune of Stagno Lombardo, in which Cittadella is situate, lies in the lower and less fertile zone of the province between the city of

* La Co-operazione Italiana, No. 88, December 15, 1892.

Cremona and the Po. The land in this district is under wheat, Indian corn, and grass; vines are grown in open rows, and about 50 ounces of silk-worm grain are cultivated for every 84 hectares (207 acres). The cultivators are labourers, resident on the farms at fixed wages, paid partly in money and partly in kind. The association lasted 3 years, with satisfactory economic results. It was dissolved because the co-partners were not sufficiently imbued with the spirit of association and of solidarity to permit of its harmonious continuance.

At Inzago,
province of
Milan.

A farm of 40 hectares (108 acres), belonging to Signor Facheris, a member of the Italian Parliament, situated at Inzago, in the province of Milan, has been let by the owner to 32 associated and jointly responsible peasant families. The co-partners have only to pay a fixed annual rent in money, and are freed from all other dues, while compensation is granted for improvements. They thus divide all the products. In 1892 the rent was paid out of the produce of the cocoons, the yield of which amounted to 1,000 kilos. (2,200 lbs.), and both landlord and tenants are stated to be satisfied with the results.*

At Passirana
Milanese.

During 1892 two further societies have been formed in the province of Milan for a similar object. One for the cultivation of an estate belonging to the hospital of Passirana Milanese, a fraction of the commune of Lainate. The extent of the property is about 58 hectares (143 acres); it is at present let to a tenant, whose lease does not expire until November 10, 1894, at an annual rent of 10,000 lire (400*l.*). The association is, therefore, only in its preparatory stage.

At Terraz-
zano.

The second example is found among the peasant cultivators of an estate situated at Terrazzano, also in the province of Milan, but which, like the first, has not yet commenced active operations. In the Upper Milanese the estates are usually sub-divided into small farms of from 2 to 4 hectares (5 to 10 acres) in extent, which are let to the peasants on a corn rent. The farmer retains for his own use the Indian corn and the produce of the stock; the yield of cocoons is divided between landlord and tenant. The estates belonging to charitable institutions are not managed directly by the owners, but are leased out for a rent in money to a third party, who sublets the land to the peasants. These estates have therefore to support the cultivators, and to yield a profit both to the middleman and the landlord.

Co-operative Rural Bakehouses.

Co-operative
rural bake-
houses.

The question of improving the dietary of the peasantry is one of great and increasing importance in this country. Referring only to those districts in northern Italy in which Indian corn, often damaged, forms the staple food of the labouring rural population, its use is accompanied by the prevalence of the terrible skin

* *La Co-operazione Italiana*, Anno VI., No. 83, December 15, 1892.

disease known as "Pellagra" which terminates in suicidal mania.

An interesting work on rural bakehouses has been published by Signor Ansano Labadini of Milan.* The question of the establishment of co-operative and other bakehouses on rural estates has been before the public since 1860. It has been taken up, on various occasions, by successive Ministers of Agriculture, by agricultural associations and private landowners, and by philanthropists, among whom Don Rinaldo Anelli, Rector of Bernate Ticino (Milan), is especially worthy of mention.

On the whole, however, little has been done to solve the problem. Signor Labadini was unable to obtain a complete list of the bakehouses established in Piedmont and Lombardy. Of the total number of 32 mentioned in his work as established between 1878 and 1884, of which 3 in the province of Novara and the remainder in Lombardy, 15 were closed, previous to 1886, with loss.

These bakeries appear, generally, to have been founded with the help of the proprietors of the estates, and to have been further aided by subsidies from the communes, the Milan Savings Bank, the Ministry of Agriculture, or other institutions, as the case might be.

The most successful bakehouse is that of Varedo in the province of Milan, established 10 years since on the estate of Signor Volpi. It is, however, not an example of co-operation, being managed entirely by the proprietor. Bakehouse at Varedo.

Signor Volpi is of opinion that the peasantry are not yet ripe for co-operation, but that it is the personal duty of the landlord, as it is in his interest, to see that the tenants on his estate are well and properly fed.

In conclusion, I would mention an interesting work on the economic conditions of the Upper Milanese entitled "The Peasant with a Fowl in the Pot and the Owner of Capital," written by the Marquis Giovanni Cornaggia, a Lombard landowner, who has paid considerable attention to practical agriculture.†

To the Commendatore L. Bodio, Director-General of Statistics at the Ministry of Agriculture, Industry, and Commerce in Rome, and to Signor Luigi Sbrojavacca, attached to the same department my best thanks are due, not only for information kindly afforded, but for having been good enough to revise a principal portion of these notes. Mr. Acting Vice-Consul Edwards has given me the full benefit of his experience of Milan, and his collaboration has been of the greatest assistance to me. My

* Il Forno Rurale Co-operativo: Note pratiche Amministrative del Ragioniere Ansano Labadini, 4a edizione accresciuta, autorizzata dalla Provincia di Milano. Milano, 1891.

† See "La Co-operazione Italiana," Anno VI., No. 79, Milano, October 15, 1892.

‡ Il Contadino col Pollo nella pentola e possessore di un Capitale, ossia l'apoteosi dell'agricoltura asciutta nell'Altipiano Milanese. Lettere varie di Cornaggia Giovanni. Milano, Tipografia editrice Verri, 1892.

acknowledgments are, also, due to Dottore Ercole Bassi, an active member of the Central Committee of Co-operative Associations at Milan, to Signor Giuseppe Croce, Secretary of the Labour Chamber in the same city, to Signor Luigi Minuti, of the "Fratellanza Artigiana" of Florence, and to many other gentlemen who have courteously afforded me information on the subjects included in my enquiry.

Florence, January, 1893.

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I T A L Y .

PALERMO.

Consul Dupuis to the Earl of Rosebery.

My Lord,

Palermo, July 8, 1893.

I HAVE the honour to transmit an exhaustive report drawn up by Vice-Consul Towsey on the Sulphur Trade in this island.

His long experience and thorough knowledge of this country and the reliable sources from which he has drawn his information leads me to think that his report will be read with interest and will be appreciated by those engaged in this trade.

I have, &c.

(Signed) H. LEWIS DUPUIS.

Report on the Sulphur Industry in Sicily.

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Sulphur has been extracted in Sicily to a greater or lesser extent for centuries, but it is only within the last 60 or 70 years that the industry in this article has come into general and active operation, and though it has formed the subject of previous reports from this Consulate (Vice-Consul Rose in 1881 and Consul Stigand in 1889) a further report, dealing with the trade for the last few years, and having regard to the crisis that has prevailed, may not prove uninteresting.

The districts where sulphur abounds are shown by the following table for 1886, the latest of the kind obtainable :—
(1609)

Sulphur
districts.

NUMBER of Sulphur Mines in Sicily.

Commune.	Number of Mines.	Total.
PROVINCE OF GIRGENTI.		
Racalmuto	44	271
Favara	39	
Comitini	30	
Cianciana	23	
Aragona	23	
Casteltermini	18	
Girgenti	18	
Grotte	15	
Licata	12	
Palma	11	
Naro	10	
Campobello.. .. .	7	
Cattolica	7	
St. Angelo	3	
Cammarata.. .. .	3	
Bivona	3	
Raffadali	2	
Ravanusa	1	
Siculiana	1	
Montallegro	1	
PROVINCE OF CALTANISSETTA.		
Caltanissetta	61	226
Castrogiovanni	52	
Villarosa	16	
Montedoro	13	
St. Caterina	12	
Calascibetta	11	
St. Cataldo	10	
Summatino.. .. .	10	
Mazzarino	6	
Riesi	5	
Aidone	5	
Butera	4	
Serradifalco	3	
Piazza	2	
Acquairva	2	
Barrafranca	1	
Pietraperzia	1	
Mussomeli	1	
Sutera	10	
PROVINCE OF CATANIA.		
Leonforte	11	
Agira	9	
Raddusa	6	
Centuripe	6	
Assaro	6	
Rammacca	3	

NUMBER of Sulphur Mines in Sicily—continued.

Commune.	Number of Mines.	Total.
PROVINCE OF CATANIA—continued.		
Caltagirone.. .. .	2	45
Regalbuto	2	
PROVINCE OF PALERMO.		
Lercara	..	25
Total	..	567*

* 376 of which are worked, and 191 closed.

Since 1886 the number of mines has become more than 800, of which two-thirds are worked.

General Remarks.

The output between 1880 and 1891 may be reckoned at about Output. 4,000,000 of Sicilian “cantars” (13 cantars to an English ton), but in 1892 it was almost 5,000,000, thus exceeding by 500,000 the highest quantity produced between 1884 and 1886.

With regard to the exports the difference has been more Exports. marked, because between 1880 and 1882 it was from 3,600,000 cantars to 3,700,000 cantars annually; from 1883–85 it approached 4,000,000, while from 1886–90 it exceeded the latter figure, and now in 1891 and 1892 it has returned to the limit of the period between 1883 and 1885, viz., 4,000,000.

The stock in 1879 (December 31) was about 1,150,000, and Stocks went on increasing until it reached 2,600,000 in 1886, from 1887–90 it gradually decreased, and by December 31, 1890, it stood at 1,400,000. In 1891 and 1892 it began to increase again until it reached 2,250,000, thereby representing double the quantity on stock in 1879, and showing that in 13 years the total production has exceeded the exportation by 1,110,150 cantars. However, if the exports in 1891 and 1892 had maintained the proportions of 1888–89–90, the deposit on December 31, 1892, would have been what it was on December 31, 1879, and during the 13 years referred to all the quantity produced would have been exported.

The quantity of sulphur ore extracted in 1891 was more than Production. 2,500,000 tons; the mineral obtained therefrom was 347,568 tons, of which 310,272 tons were exported. When compared with the (1609)

production and exportation of 60 years ago (1830), which was 38,461 tons, it will be seen that the development attained by this industry is very great, yet not to be wondered at when it is remembered that Sicily is really the only sulphur-producing country in the world; the few thousand tons exported by Japan not affecting Sicily in any way.

Mines.

Miners.

The mines in Sicily in 1891 were 818, of which 581 were working and 237 closed. The men finding work in and about the mines were 32,269. This number does not include carters, drivers, and carriers generally that convey the mineral to the coast from the mines not within touch of the railway, nor does the number include storekeepers, shippers, &c., who are all directly and indirectly engaged in the trade. The total is roughly given at 50,000.

- Miners. The total number of workmen engaged in the mines in 1891 (32,269) shows an increase over 1890. This is due to augmented production, to searches for mineral in new directions, and to increased pay: this latter circumstance induced the men to work less than usual, and necessitated the employment of extra men.
- Miners' work. The output of ore per man for the year 1891 was 102·89 tons, but in 1890 it was 109·62 tons, and the yield of sulphur was also less in 1891, the figures being 11·80 tons in 1890, and 10·77 tons in 1891. The value of the produce per man rose from 916·29 fr. in 1890 to 1,245·02 fr. in 1891, due exclusively to enhanced prices.
- Miners' wages. The annual average of wages per man went up from 365·02 fr. in 1890 to 427·55 fr. in 1891, and the daily average from 1·78 fr. to 1·99 fr. The difference between the two years would have been greater if there had not been a diminution in the hours of labour in 1891.
- Proprietors, leaseholders, &c. The persons working the mines in Sicily are generally termed "esercenti," and are divided into three classes, viz.:—
1. "Proprietors" (owners of mines).
 2. "Gabelloti" (leaseholders).
 3. "Partitanti" (contractors).

Some proprietors work their mines themselves, while others lease them on what are called "gabelle," and sometimes the proprietors and the leaseholders have their mines worked by "partitanti."

"Gabella"
(lease).

The "gabella" of a sulphur mine has all the forms of a special contract whereby the proprietor cedes to the gabelloto at the entire cost and charge of the latter the working of a mine for a given period, say 9 years or sometimes 18 years, and even more, under determined conditions; the main one being that the owner shall have, free of all expense and at his choice, a certain proportion, 20 per cent. on an average, known as the "gabella" or rent of the mineral produced. The owner likewise having the option of appointing overseers or inspectors to keep the "gabelloto" within the terms of the contract, to order the suspension of work if deemed expedient, and to direct repairs when necessary, all this, in addition to taxes and dues, to be borne by the "gabelloto" (leaseholder).

Amongst other conditions it is usually agreed that the "gabelloto" shall so work the mines as to leave columns of ore supporting arches (also of ore when the rock above is not sufficiently firm), and the columns themselves resting on beds or heaps of ore called "pasture"—all this ore reverts to the owner when the "gabella" ceases. It is often further agreed that the "gabelloto" must keep and deliver over the mine free of water and earth, must remove the ore by "scale" (stairs), use "calcaroni" (kilns) for smelting, and so forth. The object being that the owner should derive the greatest advantage possible, without being put to the expense of a single "centesimo" (one-third of a farthing).

The "partito" is a verbal agreement without a definite limit of time, *i.e.*, it lasts until one of the parties recedes from it or proposes a change. By this verbal agreement, the working of a mine or part of a mine, the fusion of the ore, the cost of labour, maintenance, &c., are undertaken by a foreman workman for a fixed compensation in money for every "carico" (264 lbs.) yielded. While the mineral is being extracted sums on account are advanced, and settlement is made on final delivery. The "partitante" often takes pickmen into partnership.

The supervision of the works is exercised by the owner or "gabelloto" giving out the "partito." Supervision.
Excavating of ore.

The "picconieri," or pickmen, assisted by gangs of boys, known as "carusi," excavate the ore, break up the rock, and heavy pieces of it are carried by the boys to the surface. The men are paid by the "cassa" (a cubic measure) of rock thus carried up.

The eduction or pumping of the water is always done by the person having the lease of the mine, and not by the "partitante." Pumping of water.

The ore on the surface is collected into a pile preparatory to its fusion by "calcaroni" or other means as described further on. Fusion.

When the sulphur has gone through the process of smelting and assumes its commercial form, it is removed by carts or by rail to the outports, and there stored for sail and shipment. Removal of sulphur.

When the sulphur is sold for delivery free alongside ship ("alla vela") it is done by contract note, the buyer agreeing to pay the seller an advance of about 25*l.* sterling for every 80 tons for delivery at a fixed time, the seller agrees therein to hold it for other 3 months after it falls due, free of charge, but at buyer's risk, and, when it falls due, the seller either consigns the sulphur himself from his own store, or gives the buyer another "letter of order" on some other store to be delivered against the value, less the advance made. Sale of sulphur by "letters of order."

Up to very recently the letters of order (which are somewhat similar to the warrants used in England for pig-iron, copper, &c.) were a means of raising money, as the buyer, by paying a small advance, obtained a letter of order and then pawned it at the bank, obtaining three-fourths value; but owing to the banking crisis, the banks have considerably curtailed their operations, and what little is done is only against first class signatures to the letters of order.

Though there are exceptions, as in the case of the mines leased and worked by Messrs. Gardner and Rose at Lercara; by Messrs. J. Trehwella and Co., near Valguarnera; by Mr. Robert Trehwella, near Caltanissetta; by Signor Florio at Trabonella, &c., yet, as a general rule, the methods of working the mines are still very primitive, for the following reasons:— Reasons why methods of working mines are primitive.

When the proprietors work the mines themselves they generally contract with a "partitante" and endeavour to get the greatest output at the least cost; the partitante is thus precluded from investing money in plant and machinery; and if the owners are of the patrician class and live away from their estates these contracts are managed by their local agents, who act as Non-investment of money.

Capital
wanting.

"middlemen." However, the system of the gabella is preferred all round. The "gabelloto" is enterprising and thoroughly acquainted with the mine and its resources, with the miners and their habits and exactions, and he possesses all the qualifications for managing a mine, except one, viz., capital; hence he has recourse to a money-lender ("sborsante"), or to a speculator, who lends the money at exorbitant interest.

Money-
lenders.

The money-lenders take care not to risk their money. At first they advance just enough to enable the gabelloto to make a start, and then, as the ore is extracted, they advance money sufficient only for the gabelloto to pay his men and other working expenses, and final settlement is reserved until the disposal of the mineral. By these means they secure the mineral, have it sent off to the stores they own or are interested in, and dispose of it to their advantage. The consequence of this system is that the gabelloto is nearly always in debt, and eagerly avails himself of an opportunity to sell his sulphur at any price to any bidder.

Speculators.

Speculators find this so profitable that they are opposed to any movement made on behalf of the producers of sulphur.

Gabelloto's
troubles.

But the gabelloto has other troubles to contend with, and they are often caused by the proprietor's overseer, who (when he does not go hand and glove with the gabelloto to the detriment of the proprietor's interests) always acts on the supposition that the proprietor is being cheated by the gabelloto, and creates distrust between them, and differences and litigation that are often very ruinous.

These also are not the only troubles that beset a gabelloto, for they are added to by his neighbours, who envy his good luck if he prospers, and "the rights of passage," "damage done" by workmen going to or coming from the mines, "permission to fuse sulphur" beyond prescribed limits of time and space, &c., afford good pretexts for levying royalties and percentages, or for imposing charges and burdens.

Summary of
condition of
things.

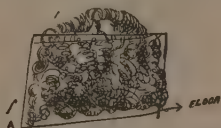
Summarising, there are in Sicily—firstly, proprietors who are not sufficiently alive to the advantages offered to them and their countrymen by the sulphur industry, nor disposed to invest money in necessary improvements. Secondly, leaseholders who have more initiative than knowledge, more experience than capital, and, what with rents, royalties, taxes, interest on money lent them, work almost always without any profit. Thirdly, foremen possessing many good qualities but ignorant and opposed to innovations.

Land and mines can be acquired and worked profitably if the above difficulties, and especially that of borrowing capital, are avoided, and if, while introducing indispensable improvements, the traditional customs and ideas of sulphur miners are not overlooked.

Fusion.

There are five methods of fusing sulphur, but the greater part of the ore at the various mines is still fused by the old method of "calcaroni," or open kilns, owing to the cost of their construction being much less than the adoption of other methods, the loss of sulphur caused by the escaping fumes being very great.

The calcaroni are built of masonry, cylindrical in form, with a "Calcaroni" sloping floor, thus—



They hold from 750 to 1,000 cubic metres of ore, 1 cubic metre being about $1\frac{1}{2}$ tons. At the bottom there is a vent hole (A) for running off the molten sulphur into wooden forms. When the calcarone is filled, large pieces of ore are placed at the bottom so that there may be impediment to the "olio" (Sicilian term for molten sulphur) running out, and the work of piling up large heaps between the quadrangular walls goes on, the pieces of ore, getting gradually smaller, until the top of the calcarone is reached; the ore is there heaped up in the form of a cone, and this is covered with "ginisi" (the calcined refuse from old calcaroni) in order to prevent loss and protect it somewhat from the elements. In order that the crops may not suffer from the sulphur fumes, the calcaroni are only allowed by law to be in operation from June 28 to the end of December, and one fusion of a large calcarone lasts three months.

The "Gill" system, invented by an Englishman, the late Mr. "Gill" Joseph Gill, improved upon, and patented by the late Robert ^{system.} Gill, his son, consists of ovens of masonry similar in form to the calcarone, but much smaller, and covered in with a cupola in masonry. They are generally built and worked in couples, and each cell contains from 5 cubic metres to 30 cubic metres of ore; they are also built in batteries of four, and the system is this—after being charged, the ore in one cell is set fire to, and the smoke, instead of passing into the open air, as is the case with the calcarone, passes into the adjacent cell, and gradually heats the mineral contained therein, until by the time the first cell has finished working the other has reached such a temperature that the ore ignites, and No. 1 cell is again filled, and so the process goes on. The advantage is that the gases, which are heavily charged with sulphur, are not lost, and the percentage of sulphur recovered is considerably higher; further, the time occupied is much less than with the calcaroni, the working of each cell occupying from 72 to 96 hours, according to its size, and as very little smoke escapes the proprietors can work all through the year.

A gold medal was awarded to this system at the National Exhibition at Palermo, 1891–92, and the patents are worked by an English company, under the style of The English Sulphur Fusion Company, with head offices in London, J. Stanfield Grimshaw, Esq., chairman, and managed in Sicily by Mr. Robert Rose. About 700 cells are in fusion, and more than 100 in construction. The producers using them number over 200, distributed in about 30 mining districts. The royalties vary

according to number of cells, &c., but on an average they are 4*l.* a year per cell. If these royalties were paid, and paid punctually, a good profit would doubtless be the result, but, unfortunately, they are not paid, and almost all the money collected is absorbed by expenses and law suits.

"Di Stefano"
system.
"Fiocchi"
system.

There are three other systems—the "Di Stefano," which is still under trial, I have no description of. The "Fiocchi" consists of wrought iron cylindrical receptacles, rather conical, which are suspended by ears (like cannon); when the apparatus has to be filled with ore it is in a vertical position, and a temporary cover is fixed on one extremity. It is then placed in a horizontal position, and the working cover containing a steam-pipe is then screwed on and made steam-tight. Steam at from 60 lbs. to 80 lbs. pressure is then turned on, which at the outset becomes water, but as this is drained off and the mass of ore becomes heated the steam becomes dry and the sulphur fuses and is run off into proper receptacles. The apparatus is 4 metres long by 1 metre 20 centims. diameter; three are worked in a row, and each contains 3 cubic metres of ore. Seven fusions are made in 24 hours; a steam-boiler of 16 horse-power is required for the necessary steam. This system is adapted for rich ore, or ore that is porous, and the percentage of sulphur recovered is much greater than with the calcaroni, with the great advantage that the sulphur ore can be rapidly turned into commercial sulphur and realised in a short space of time. The cost of this apparatus, about 400*l.*, is rather heavy; hence the smaller mine owners prefer the old system of calcaroni.

"Orlando"
system.

Finally, there is the "Orlando" system, which is the same as the Fiocchi, but the apparatus always remains horizontal. Four trains, each loaded with about 15 cwts. of ore, are run in on rails and remain during the fusion, the apparatus is made steam-tight and steam turned on; the advantage over the Fiocchi system being the greater facility and quickness in charging and discharging the apparatus.

Sulphur
refining.

Sulphur refining is only carried on at Catania. There are seven refineries. The largest is owned by Messrs. Alonzo and Consoli, and consists of 4 ovens, each containing a battery of 10 retorts for refining, capable of turning out 48 tons of refined sulphur in 24 hours, and 4 ovens, with 4 chambers for subliming or making flour of sulphur, capable of producing 2,000 tons during a season, and a steam-mill with runner edge stones of lava, capable of milling 3,000 $\frac{1}{2}$ cwt. bags of sulphur per day.

The next refinery in importance belongs to Mr. Robert Trehella, and consists of 2 ovens, each containing 10 retorts, capable of producing 24 tons of refined sulphur in 48 hours, and 2 ovens, with two sublimating chambers of about the same capacity as the foregoing, and a steam-mill capable of producing 2,500 $\frac{1}{2}$ cwt. bags in 24 hours.

The refining season commences in October and terminates in June.

Sulphur
milling.

The milling season lasts only about 4 months, say from

February to May, and the produce is almost exclusively used for the sulphuring of vines. During the last season a large quantity of sulphate of copper has been used. It is first reduced to powder, and then added to the ground-sulphur in the proportions of 3 to 4 per cent. as a remedy against the peronospora (a vine disease).

The qualities of ground sulphur prepared at Catania are—

1. Double refined impalpable.
2. Refined "uso Rimini."
3. Ordinary refined.
4. Half refined.
5. "Uso Romagna."
6. Floristella.
7. Best seconds, Mark C, and several lower qualities.

The refinery consists of a long oven in masonry, with arched roof, upon which are placed the cast-iron retorts, which are again covered by another arch, upon which are placed cast-iron boxes surrounded by brickwork, and with flues for the smoke and flame from the fire in order to keep them continually heated. Newcastle coals, mixed with wood, in order to obtain an abundance of flame, are used. The fire grate is at one of the extreme bottom ends of the oven, and the gases and flames ascend by spiral openings, and play all round the retorts, and the smoke ascends by the flues to the cast-iron boxes, and from thence to the chimney or stack. Refined sulphur.

The sulphur is put into the cast-iron boxes, where it is fused, and by means of a valve it passes into the retorts, where it is transformed into gas, and thence by a special cast-iron pipe it passes into the condensers, which are cylindrical cast-iron vessels, and from the said condensers the refined sulphur, which has again become liquid, passes by a special aperture into cast-iron pans, so that it may gain the required temperature, and from thence it is ladled out into cast-iron forms or moulds of about 1 cwt. capacity, or if roll sulphur is required it is ladled into metallic moulds of the shape it is usually seen in commerce.

Sublimed sulphur is manufactured nowadays in an oven, as described for the refined sulphur, but with only two retorts, and the gases, instead of going into the condensers, ascend into a large and specially constructed chamber, lined with bricks, which is hermetically closed, with the exception of a valve in the roof, which opens automatically when the tension produced by the gases is too great for the strength of the chamber, and the gases, as they enter the chamber at the necessary temperature, become immediately solid, and the sublimed sulphur falls into the form of flakes, like snow, to the ground. Sublimed sulphur.

Sulphur of commerce contains from 2 per cent. to 5 per cent. of impurities, the lower dark coloured qualities, such as good or current thirds, are generally used for refining, owing to their lower price.

Exports.

RETURN of Shipments during the Years 1890-92.

Countries.	Quantity.		
	1890.	1891.	1892.
	Tons.	Tons.	Tons.
Continental Italy*	40,304	47,285	40,898
Austria	9,507	11,102	9,519
France	71,734	58,339	77,395
Germany	14,285	11,249	16,414
Greece	11,583	11,266	12,846
Belgium.. .. .	7,349	5,241	5,572
Great Britain	24,845	25,772	24,978
Portugal	16,854	7,310	11,241
Russia	15,425	12,642	13,284
Spain	5,162	7,727	9,627
Other countries of Europe ..	8,225	6,787	9,920
United States of America ..	104,982	92,493	90,056
Other countries in the world..	13,751	1,945	2,162
Total	344,006	306,158	323,912

* Shipments to other Sicilian ports are excluded.

And the shipments for the 4 months ending April 30, 1893, compared with the corresponding period of 1892, were these—

Countries.	Quantity.	
	January 1 to April 30, 1892.	January 1 to April 30, 1893.
	Tons.	Tons.
Continental Italy	21,950	31,584
Austria	4,842	4,336
France	31,837	34,025
Germany	4,317	4,972
Greece	12,122	8,577
Great Britain	8,816	8,493
Portugal	10,557	9,208
Russia	3,776	11,804
Spain	7,061	6,586
Other countries in Europe ..	6,027	6,110
United States of America ..	24,536	43,149
Other countries in the world ..	331	781
Total	136,172	169,575
	..	33,403

More shipments take place in the first half of the year than in the second, but more mineral is sent down to the coast in the latter half, there being more smelting done then. Prices are naturally affected by this means, as there is more demand in the first 6 months and more supply in the second.

There seems to be a steady decline in the exports to the United Kingdom due to the manufacture of sulphuric acid by means of Messrs. Chance's process, but it is thought in Sicily that there is no ground for fearing that any great reduction in exports will be caused thereby, Chance's process being still looked upon as of doubtful financial profit, though its success scientifically is undoubted.

Falling-off in exports to England and America. Chance's process.

Another diminution is observable in the exports to the United States, where pyrites have also taken the place of sulphur in chemical and other works, but the substitution of pyrites is not expected to be so general as to materially affect the sulphur trade, and Sicilians hope that their losses on the English and American markets may only be temporary, and likewise compensated by the increasing demands from Austria, Germany, and Russia.

Pyrites. Increased demand from other countries.

The principal ports of shipment are Port' Empedocle (Girgenti), Catania, and Licata, and the quantities shipped therefrom in 1891-92 were—

Ports of shipments.

Ports.	Quantity.	
	1891.	1892.
	Tons.	Tons.
Port' Empedocle	134,055	130,803
Catania	97,284	118,694
Licata	62,080	61,515
Other ports	12,789	12,900
Grand total	306,158	323,912

The following tables of values and prices will give a clear idea of the fluctuations of the last few years.

Prices.

The difference in the quantities given as shipped in 1891 in the foregoing table and in the following one is explained by the fact that the former is from a commercial source and the latter from an official source.

ITALY.

QUANTITIES, Mean Prices, and Values of Shipments for the Year 1891.

Month.	Catania.			Port' Empedocle.			Licata and other Ports.		
	Quantity.	Mean Price per Ton.	Value.	Quantity.	Mean Price per Ton.	Value.	Quantity.	Mean Price per Ton.	Value.
	Tons.	Lire c.	Lire c.	Tons.	Lire c.	Lire c.	Tons.	Lire c.	Lire c.
1891—									
January ..	7,329	105 72	774,821 88	9,268	103 50	959,238 00	1,759	105 12	184,906 80
February ..	12,196	114 88	1,401,076 48	11,727	109 86	1,288,328 22	6,901	110 46	762,284 46
March ..	14,564	133 17	1,939,457 88	13,220	130 40	1,723,888 00	8,919	128 83	1,149,034 77
April ..	14,103	130 92	1,846,364 76	14,414	131 41	1,894,143 74	6,642	131 63	874,286 46
May ..	17,342	117 32	2,034,563 44	7,594	117 80	890,776 20	6,987	115 41	806,369 67
June ..	6,548	101 73	666,128 04	4,122	99 03	408,201 66	10,490	97 57	1,023,509 30
July ..	5,448	95 62	520,937 76	10,734	91 19	978,833 46	7,261	91 00	660,751 00
August ..	2,941	105 23	309,628 48	9,595	102 81	986,461 95	6,518	101 73	663,076 14
September ..	2,242	118 03	264,623 26	12,797	113 83	1,458,052 21	3,724	115 20	429,004 80
October ..	4,451	123 93	551,612 43	13,977	120 36	1,682,271 72	5,264	121 94	641,892 16
November ..	3,225	121 58	392,095 50	12,003	116 83	1,402,310 49	1,488	117 50	174,840 00
December..	5,960	123 67	737,073 20	19,113	118 96	2,273,632 48	5,292	120 00	635,040 00
Total..	96,349	118 72	11,438,413 11	138,564	115 08	15,946,188 13	71,245	112 36	8,004,994 84

AVERAGE Prices per Sicilian Cantar in Italian Lire.

Qualities.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
	Lire c.	Lire c.	Lire c.	Lire c.	Lire c.	Lire c.	Lire c.	Lire c.	Lire c.	Lire c.
2 V.L. fm. = first quality ..	7 99	7 29	7 04	6 54	5 88	5 54	5 53	6 43	9 30	7 78
2 B.L. fm. best second ..	7 84	7 23	6 97	6 48	5 77	5 49	5 49	6 39	9 25	7 74
2 C.L. fm. good second ..	7 67	7 15	6 86	6 33	5 59	5 43	5 45	6 35	9 18	7 69
3 V.L. fm. current second ..	7 52	6 95	6 69	6 14	5 43	5 28	5 21	6 16	8 89	7 41
3 V.L. uso. best third ..	..	..	..	6 01	5 36	5 24	5 15	6 09	8 82	7 30
3 B.L. fm. good third ..	7 30	6 82	6 56	5 93	5 33	5 21	5 11	6 02	8 74	7 21
3 C.L. fm. current third ..	7 08	6 65	6 44	5 82	5 28	5 11	5 02	5 88	8 54	7 04

NOTE.—To find the price in English currency per English ton multiply by 13 and divide by 25·00.

Prices falling. The foregoing tables show that prices which, in 1891, had recovered from the great and disastrous decline that had prevailed between 1886 and 1890, evinced, in 1892, a renewed decrease and downward tendency, which continues and causes grave apprehensions, especially to those who had been encouraged by the favourable prices attained in 1891 to lay out investments in plant, machinery, and improved appliances generally. Unhappily, workmen and miners, whose wages had advanced, cannot reconcile themselves to the inevitable reduction in pay, and either do not believe in the reported fall in prices, or consider it only as a passing incident. Moreover, the fact that mines become deeper the more they are worked augments the cost of extraction and production.

Causes. In 1891 prices rose to as much as 12 fr. the quintal (100 kilos.) for "best third," whereas in 1893 they have dropped to 5 fr. 84 c., a difference of more than half. The causes of this fall are attributed to—

1. Over production.
2. Action of speculating exporters and speculators.
3. Reduction in cost of removing the mineral through the development of railways.

Remedies. The repetition of these crises at short intervals has seriously affected the interests of the industrial community, and it has more than once met together with the object of ascertaining the causes and devising the remedies.

In 1889 several proposals were submitted to the Italian Government, and the Bank of Sicily was urged to take some step towards instituting "Magazzini Generali" or Central Stores for the mineral to be deposited and sold at—the producers depositing their mineral and receiving receipts or "warrants;" but the matter is still under consideration.

In the spring of this year (1893) a large number of proprietors again met and expressed the following opinions:—

1. That there was an excess of production over exportation and consumption.
2. That the mining industry was at the mercy of speculators and money-lenders.
3. That there was nothing to fear from the competition of other sulphur-producing countries or from the substitution of pyrites or chemical processes.

The producers represented at the meeting formed themselves into a company, and proposed the foundation of a syndicate, a mining bank, and general stores; and to petition the Government for a reduction in taxes and dues, and to obtain from railway companies reduced rates and charges.

Difficulties of proposed remedies succeeding.

But, as already stated, the store-keepers, speculators, and others are opposed to all these projects, which, while benefiting producers generally, and the poorer ones in particular, would deprive the speculators and money-lenders of their lucrative transactions.

Another impediment to the success of these projects is to be found in the total absence of unity and mutual confidence among the generality of sulphur producers.

Nevertheless, the matter has been warmly taken up by the Government and Chamber of Commerce, and a satisfactory solution is hoped for. Interest taken by Government.

In conclusion, I give the description of the working of one of the important mines, viz., "Grottacalda."

This mine, situated at about 7 kiloms. from the town of Valguarnera, and 21 kiloms. from the nearest railway station of Assaro, belongs to Prince Sant' Elia, and is at present leased to and worked by Messrs. J. Trehella and Company. It produces about 15,000 tons of sulphur yearly, of which 22 per cent. is made over to the proprietor as rent.

The extreme depth is 140 metres. There are three shafts, besides various "scale" or stairs leading into the mine. At the main shaft the ore is drawn to the surface by a 60 horse-power horizontal winding engine, the cage containing a tram waggon, with about 15 cwts. of ore at a time. The ore is extracted from the two smaller shafts by modern steam winches of 8 to 10 horse-power. There are three horizontal Lancashire boilers, each having 30 square metres of superficial heating surface and two vertical boilers for driving the steam winches. The amount of water is about 1,000 cubic metres in 24 hours, and it is extracted by a double-acting vertical beam pump (Cornish pattern) working in three lifts; the length of stroke is 3 metres, diameter of plunger 30 centims., speed of pump six strokes per minute; besides this, there are three Worthington pumps in reserve against accidents. The quantity of ore brought to the surface in 24 hours is about 300 tons. The ore yields about $3\frac{1}{2}$ cwts. of fused sulphur per ton of ore. There are about 150 miners and 250 boys employed underground, divided into three shifts, besides an underground engineer and several foremen. On the surface there are: one director, one mining engineer, firemen, employés, tipmen, guards for controlling the sulphur fused at the kilns and ovens, besides a number of workmen. The sulphur, when fused, is taken down to the railway station by carts, 50 of which are regularly employed, and at times these are increased to 100; each cart takes down about 14 cwts. of sulphur.

There are other mines worked as admirably as the foregoing, especially those leased by Gardner, Rose, and Company, at Lercara; but a description of them would carry me beyond the limits of a brief report. Other mines worked as admirably.

I am greatly indebted to Vice-Consul Elford at Catania; to the Cavaliere Travaglia, director of the Mining School at Caltanissetta; and to Vice-Consul Oates of Girgenti, for very valuable information kindly supplied, which has been of much service in preparing this Report. Sources of information.

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JAPAN.

TOKIO.

Mr. de Bunsen to the Earl of Rosebery.

My Lord,

Tokio, June 30, 1893.

I HAVE the honour to transmit to your Lordship herewith a Memorandum by Mr. Spring Rice on the National Debt of Japan, which is drawn from a work recently published by the Financial Department.

It is interesting as showing the rapid development of Government credit since the restoration. In 1870, a loan was raised in England at 9 per cent. at the issue price of 98; the average price of the consolidated 5 per cent. bonds at the time of issue, in 1886, was 100.04; they are now quoted at 108.

The conversion of bonds bearing a high rate of interest into 5 per cent. bonds has proceeded rapidly. Bonds to the total value of upwards of 2,000,000*l.* sterling will be paid off this year without option of conversion. As a result of this operation there will, by October, be no bonds bearing a higher rate of interest than 5 per cent., except the foreign loan of about 750,000*l.*, and the loan for the suppression of the south-west rebellion (10,000,000 *dol.*), both of which will mature in 1897.

The foreign loan pays 7 per cent. interest in gold, which, to Japan, is about 13 per cent. on the capital received in 1873. The interest on the rest of the debt is paid in silver.

A further sum of 60,000,000 yen (8,500,000*l.*) is to be raised by yearly instalments of 5,000,000 yen for the construction of railroads.

The total internal debt of Japan, exclusive of the foreign debt, will at the end of the year amount to about 252,000,000 yen: 10,000,000 yen at 7½ per cent., 10,000,000 yen at 4 per cent., 28,000,000 yen bearing no interest, and the remainder at 5 per cent. 22,000,000 yen are applied annually to the payment of principal and interest.

I have, &c.,

(Signed) M. DE BUNSEN.

Report on the National Debt of Japan.

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Total Debt of Japan in March, 1893.

In March last the internal and foreign debt of Japan was as follows:—

Number.	Description.	Amount.		Interest.
		Currency.	Sterling.	
		Yen.	£	Per cent.
1	Old loan	6,364,180	..	..
2	New loan	10,525,925	..	4
3	Pension bonds (a)	30,740,020	..	5
	(b)	9,320,740	..	6
4	Loan for redemption of unsigned paper money	7,879,900	..	6
5	Naval loan	16,980,000	..	5
6	Consolidated loan	148,550,900	..	5
7	Railway loan	2,000,000	..	5
8	Loan for suppression of S.W. rebellion	10,000,000	..	7½
9	Convertible notes borrowed from Bank of Japan for redemption of Government paper money	22,000,000	..	..
10	Foreign debt	..	768,200	7
	Total, internal debt	264,361,665	..	..
	,, foreign debt	..	768,200	..

The following explanations of the different items are taken from a work on the National Debt of Japan published by the Finance Department. Explanations
of items.

Old and New Loans.

Prior to the restoration, each of the 277 fiefs had its own debt. In 1873, a cabinet ordinance declared that these debts became State liabilities. Those which had been incurred between 1844 and 1867 to be called the "Old Loan," and such as had been contracted between 1867 and 1871 (when the fiefs were abolished) to be called the new loan. Old and new
loans, 1873.

After careful examination of the claims that were sent in (of which about half were rejected), and the payment in cash of claims amounting to less than 25 yen bonds to the amount of 12,418,175 yen were issued for the new loan, and 10,972,725 yen for the old loan.

The bonds for the old loan are terminable annuity bonds expiring 1921; about 220,000 yen are paid off per annum.

The bonds for the new loan were redeemable each year by lot—the whole to be redeemed by 1889, according to the original plan. The rate of interest is 4 per cent.

The scheme, however, was frustrated by the attempt of Saigo to establish a separate Government in the southern island. The suppression entailed a great expenditure, and in 1877, the year of the rebellion, the redemption was suspended. The operations of paying off the bonds, &c., were entrusted to the Bank of Japan; $\frac{1}{1000}$ of the sums paid as principal, and $\frac{3}{1000}$ of the sums paid as interest were allotted as fees.

Pension Bonds.

The object of the pension bonds was to supply the noble and priestly classes with the means of a livelihood. Prior to the restoration, the greater part of the land was held by the Daimyos, and the rest was divided between the Imperial family, the Temples, the Shogun, and the Hatamoto, or Shogun's vassals and persons to whom grants had been made for meritorious services. The revenues from these lands were administered by the owners who supported their retainers with the proceeds, or gave lands rent free for military service. The occupiers paid a rent which varied according to the district, and, as a rule, enjoyed fixity of tenure with certain restrictions as to transfer and cultivation. The holdings changed hands by inheritance or adoption. The rights of the lord to raise the rents or to resume possession seem to have varied according to circumstances. At the revolution, the Crown resumed the ownership of the land by voluntary surrender or by force. The occupiers were given certificates of ownership, and, instead of rent, paid a land tax to the Government, which thus, assuming the possession of the land, assumed with it the responsibility. Pension
bonds,
1874-77.

(1620)

bility of providing for those who had been formerly dependent on the land.

To provide for these persons pensions were accorded to them, which at first amounted to one-third of the total outlay of the Government. Till 1875, these pensions were payable in rice. For that year they were made payable in money, the average price of rice paid to the Government for tax during the preceding 3 years being taken as the basis of conversion. The Daimyos were allowed one-tenth of their former revenues, and the military class were given pensions paid, not as before by the Daimyo or the tenant farmer, but directly by the Government.

In order to enable the poorer pensioners to obtain money for starting in business, they were allowed to capitalise their pensions in the following manner:

Hereditary pensions at six years' purchase, life pensions at four years, half to be paid in cash, half converted into bonds.

The rate of interest of these bonds was to be 8 per cent. Many pensioners converted their pensions, with the result that, owing to ignorance of business (for in pre-revolution times the Samurai was forbidden to engage in trade), the proceeds were soon squandered. The system was, therefore, put an end to in 1876, after upwards of 35,000,000 yen had been handed over in cash and bonds. The redemption of the bonds was completed in 1883.

In 1878 the pensions which remained were converted into bonds at various rates according to their character and amount. Thus in the case of hereditary pensions above 70,000 yen, they were converted at five years' purchase, and interest allowed at 5 per cent. In the case of pensions between 100 yen and 1,000 yen interest was allowed at 6 per cent. Hereditary pensions less than 100 yen were divided into six grades, and the rate of interest was fixed at 7 per cent.

Life pensions were converted in the same manner, but the amount of principal was reduced one-half.*

As a result, bonds to the amount of 173,861,000 yen were issued at rates varying from 5 per cent. to 10 per cent., of which the feudal pensioners became the holders. According to the original plan these bonds would have been redeemed in 17 years, but the Satsuma rebellion upset the Government's financial calculations. As a result of the various repayments, it will be seen that in March last of the 5 per cent. bonds 30,000,000 yen remained unpaid, and under 10,000,000 yen of the 6 per cent. bonds, which latter will be paid off in the course of the present year (1893). The 10 per cent. were all paid off in 1882, and the 7 per cent. in 1890.

Before the conversion took place the Government paid in pensions upwards of 17,500,000 yen. The sum payable as interest on the hereditary pension bonds was 11,500,000 yen, a difference of 6,000,000 yen.

* In respect of pensions saleable by the former fiefs, the scale of conversion was 10 years' purchase at 10 per cent. The value of these bonds issued was about 9,000,000 yen.

It is estimated that the military class (almost all of whom must have been dependant on rent or pensions) numbered about 6,000,000 at the time of the revolution, so that it is evident that only a small proportion of these were provided for.

Pension Bonds to Shinto Priests.

At the restoration the lands belonging to shrines were given up and the number of priests greatly reduced. A distinction was made between the Shinto and Buddhist priests, the latter being supposed capable of continuing their occupation and living on offerings. The Government took the former under its protection and granted pro ratâ bonds to those who had received incomes from former temple lands. The rate of interest was 8 per cent. The bonds were redeemable by lot, and were all paid off in 1886. The original amount was 380,411 yen. Besides these, bonds were assigned to various temples in exchange for the surrender of their lands. The total amount disbursed was 1,885,000 yen, and payment was completed in 1887.

Pension bonds
to Shinto
priests, 1877.

Redemption of Paper Money.

Shortly after the revolution the Government issued paper money, which soon fell to a discount against coin, although the issue was limited to 32,500,000 yen. In order to keep up its value the Government offered to give 6 per cent. bonds in exchange for the notes on the amount of paper in possession of any person from December, 1873. The bonds were of two kinds, registered and unregistered, of which latter foreigners were allowed to become owners. On the resumption of specie payment in 1886 the issue of these bonds was suspended. Up to that date 6,669,250 yen were issued for the registered bonds, and 7,929,900 yen for the unregistered. The former are all paid off; the latter will be paid off in the course of the year (1893).

Redemption
of paper
money,
1873-'86.

Naval Loan.

In 1886 a loan of 17,000,000 yen was authorised at 5 per cent., the proceeds to be expended on the navy. The principal was to be redeemed by lot at any time within 36 years, no redemption to take place for the first five years. The bonds were to be allotted to the highest bidders in order. Four issues were made, the last taking place in 1889. At the first issue the average price paid was 103·75, and at the last 100·08.

Naval Loan,
1886.

Public Works.

In 1878 the Government decided to raise a loan of 12,500,000 yen, the proceeds to be devoted to improving the means of (1620)

Public Works
Loan of
1878.

transportation and encouraging industries and agriculture. The issue price was 80 yen for 100 yen bond, and the interest 6 per cent. The bonds were to be redeemed within 26 years.

Nakasendo
Railway Loan
of 1883-85.

The Nakasendo Railway Loan was issued in three instalments, from 1883-85, for the purpose of the construction of a line between Tokio and Kyoto. It was the first to which foreigners were allowed to subscribe. The sum actually raised was 18,290,000 yen for 20,000,000 yen worth of bonds, at 7 per cent.

Supple-
mentary
Railway Loan,
1889.

In order to complete the series of railways contemplated in the Act, a further sum of 2,000,000 yen was borrowed in 1889; the bonds (interest 5 per cent.) were allotted to the highest bidder, the average price being 100.35.

New Railway
Loan, 1893.

In June, 1892, a Bill was passed providing for the issue of bonds for the purpose of raising funds for the construction of railways. In 1893 a definite scheme of extension was approved of. A sum of 60,000,000 yen is to be raised from 1893 to 1905 in public 5 per cent. bonds, at 5,000,000 yen a-year. The determination of comparative lines is deferred until the next session; but the scheme approved of provides for the construction of 1,200 miles. In September, 1892, the total mileage open was 1,750, with 100 miles in construction. The scheme contemplated involves a total mileage of 5,000.

In the budget for 1893 the receipts from the public works of the Government are estimated at about 2,000,000*l.*, and the money to be expended on subsidies, railways, &c., at about 1,250,000*l.*

Loan for the Suppression of the South-West Rebellion.

S.W. Re-
bellion Loan
of 1877.

The various complications with Corea, Formosa, &c., did not necessitate any special loan; but the rebellion in the island of Kiushiu, which lasted for 200 days in 1887, cost the nation 42,000,000 yen, and necessitated an increase of the national debt. Great difficulty would then have been experienced in raising the necessary funds had not the 15th national bank advanced 15,000,000 yen at 5 per cent. in bank notes, to be paid back in 20 years. The bank was allowed to issue notes beyond the limit prescribed by the Bank Act. Six years afterwards 5,000,000 yen was paid back, and 2,500,000 yen of the over-issue of bank notes having been withdrawn, the amount of the bank's reserve was made to conform with the law; but in consideration of the great services rendered by the bank to the nation at that critical time the rate of interest was raised to 7½ per cent. (which rate was considered fair at the time—1883). The Government was not to repay the principal for 20 full years from the original loan, *i.e.*, 1897.

Foreign Loan.

9 per cent.
sterling

This was the first loan raised abroad by Japan. With a view

to develop the resources of the country by facilitating means of communication the Government of 1869 entrusted certain Commissioners with the duty of making a contract with an Englishman (Mr. H. N. Lay), for the purpose of raising a loan of a fixed amount on the security of the customs duties and the net income of a railway to be constructed with the proceeds of the loan. Old Foreign Loan, 1870.

The contract with Mr. Lay was dissolved, and the Oriental Bank Corporation conducted the operations. The amount was to be 1,000,000*l.* sterling, then equivalent to 4,880,000 yen—interest to be at the rate of 9 per cent.; the sum of 100,000*l.* to be annually redeemed, the process to be completed in 1882.

The issue price was 98*l.* for every 100*l.* bond. The proceeds were 980,000*l.* or 4,782,400 yen. 1,500,000 yen were employed on the construction of the railway from Tokio to Yokohama, and 2,000,000 yen for the purchase of gold and silver coin for recoinage. The expenses of issue amounted to about 1.72 per cent. owing to the appreciation of gold, the total amount disbursed for this 4,800,000 yen from the date of issue of the loan in 1869 to 1882, the year of maturity, was 8,869,513 yen.

The 7 per cent. sterling new foreign loan was raised for the purpose of furnishing funds for the commutation of the pensions of the former noble classes in order to start them in business (see above). A Japanese Commissioner proceeded in 1872 to London where he succeeded in issuing bonds amounting to 2,400,000*l.* sterling, which was equivalent to 11,712,000*l.* The issue price was 92*l.* sterling, and the proceeds were 10,833,600 yen. The interest was to be 7 per cent. paid in gold, and the debt was to be repaid by lot in 25 years from the date of issue. 216,000*l.* were to be paid every year for principal and interest. From 1873–89, a total sum of about 20,000,000 yen was paid, representing 3,456,000*l.* sterling. The appreciation of gold cost Japan over 3,000,000 yen. New Foreign Loan, 1873.

At the present (July, 1893) rate of exchange, Japan is paying 13 per cent. in silver on the amount received in order to discharge her gold liability.

The debt matures in 1897; in March last, 768,200*l.* were outstanding. The annual charge for interest and principal now amounts to about 1,500,000 yen.

The Consolidated Public Loan.

The consolidated public loan is to be raised from time to time as the Finance Minister thinks fit, for the purpose of converting and consolidating domestic debts bearing interest over 6 per cent. The total amount of the bonds to be issued is limited to 175,000,000 yen. In 1886, after the resumption of specie payments, Government bonds over 6 per cent. interest commanded a high premium; in that year began the work of conversion and consolidation. The consolidated public loan provides that the rate of interest is to be 5 per cent.; the bonds unregistered; the Consolidated Public Loan, 1886.

principal to be paid by lot within 56 years of the issue of the bonds (1943). The bonds to be delivered first to the highest bidder; except for subscribers of sums smaller than 200 yen to whom bonds should be issued to the full amount of their subscriptions. The first issue was made in 1886; the amount was 10,000,000 yen. Nearly twice this amount was subscribed, and the bonds were finally disposed of at 100.04

Besides subscriptions in cash, the Government received subscriptions of 179,650 yen in Government bonds bearing interest at 6 per cent. and upwards, no doubt owing to the fear of the owners that the bonds should be immediately repaid.

A special issue took place in 1888, when bonds to the value of 7,500,000 yen were handed to the Bank of Japan, at par, for the repayment of Treasury bills.

The second public issue was in 1889, when bonds to the amount of 5,000,000 yen were issued, the average price being 100.3. At this issue, however, none of the high interest bonds were offered for conversion.

It may be noted that these bonds may be held by foreigners. In these issues, however, one foreigner only appears as a holder in the official returns—bonds to the amount of 2,000 yen were issued to him.

Of the sums thus obtained amounting to 22,519,881 yen, 1,258,138 yen were paid out in the first year as interest and for the expenses of issue, and 18,130,545 yen was employed for the redemption of the 7 per cent. hereditary pension bonds. On each occasion for redemption a considerable number of persons demanded consolidated loan bonds instead of cash. From 1886–89 (after which date statistics are not to hand) there were 12 drawings of 7 per cent. bonds for redemption, the aggregate amount drawn being over 64,000,000 yen, of which 43,000,000 yen, by the option of the holders of the drawn bonds, were exchanged for consolidated public loan bonds.

Besides this, provision holders of 6 per cent. bonds, whether drawn for redemption or not, were permitted to exchange them for consolidated loan bonds.

Service of the Debt.

Payment of
bonds without
option of
conversion.

22,000,000 yen are applied annually to the payment of principal and interest and of the attendant expenses. The amounts assigned to each item of the categories of the debt are, with the exception of the old internal debt, determined at the period of compiling the budget. As the holders of bonds drawn for redemption have in many cases preferred to exchange their bonds for consolidated loan bonds, there has been a gradual accumulation of money in the Treasury from the fund which is from time to time assigned for redemption. Taking advantage of this fact, the Government in April last issued a notification announcing the payment of 10,000,000 yen of 6 per cent. bonds

without option of exchange. It is announced that the remaining 6 per cent. bonds will be paid in a similar manner by October next with the result that except the foreign debt and the debt to the 15th national bank (the loan for the suppression of the south-west rebellion) there will remain no debt with interest higher than 5 per cent. The total value of bonds to be paid this year in the above manner will be about 17,000,000 yen.

The consolidated loan will then amount to about 150,000,000 yen with an annual charge of 7,500,000 yen. Besides this there will be the old and new loans (the former an annuity loan without interest, the latter 4 per cent.), the 5 per cent. pension loan, the loan for the suppression of the south-west rebellion ($7\frac{1}{2}$ per cent.), the railway and naval loans, both at 5 per cent.

Comparing the charge of this debt for interest alone in the years 1887-88 and the present year, allowing for the 5,000,000 railway bonds to be issued and the repayments above specified, and excluding the foreign debt and the annuities, it appears that the charge of the debt for interest was a little under 14,000,000 yen in 1888, as compared with 11,200,000 yen in 1893-94, and 12,000,000 yen in 1892-93.

Against this must be set 1,828,000 yen to be paid this year for interest and principal on the foreign debt, as against 1,325,363 yen which was paid in 1887.

Redemption of Government Paper Money.

In 1890, a sum of 22,000,000 yen was borrowed from the Bank of Japan for the redemption of Government paper money. This sum was without interest, and was in convertible notes.

Of the Government paper money, 25,000,000 yen's worth were in circulation in 1891-92, against 98,000,000 in 1882.

The following is the return of convertible notes, reserves and securities of the Bank of Japan for the week ended June 24, 1893, as published in the official Gazette:—

RESERVE AND SECURITIES.

Description.	Amount.	Total.
	Yen.	Yen.
Gold coins and bullion	21,806,200	
Silver	65,605,672	
		87,411,872
Government bonds	5,351,667	
" deeds	22,000,000	
Commercial bills	5,217,067	
		32,568,734
Grand total	..	119,980,606

Forecast of:
the state of
the public
debt, 1893-94.

Charge of the
debt.

Loan from
Bank of
Japan for
repayment of
paper money.
Reduction of
Government
paper money
in circulation
in last 10
years.
Convertible
notes of Bank
of Japan,
monthly
statement.

CONVERTIBLE NOTES.

Description.	Amount.
	Yen.
Amount kept in Central Treasury	7,625,291
„ for the redemption of paper money ..	13,164,910
In circulation	99,190,405
Total	119,980,606

Summary.

Recapitulation of the history of the public debt of Japan.

In order to obtain money for works of communication the issue of coinage and the necessary expenses of the reconstruction of the Government, two foreign loans were issued in the first six years after the restoration.

The old foreign loan at 9 per cent. was issued at 98 in the year 1870, and the new foreign loan at 7 per cent. was issued at 92 in 1873. They amounted together to 16,500,000 yen, or under 3,500,000*l.*, according to the then rate of exchange. Of this sum about 750,000*l.* remains, on which interest is paid at 7 per cent. in gold, or calculated on the silver value of the interest and principal about 13 per cent. on the sum received. This debt, the only foreign debt of Japan, will be paid off in 1897.

In 1873 measures were adopted for discharging the obligations carried over from the old Government to the new—various loans were issued—the new and the old loan into which the debts of the old fiefs were converted—the “Kinsatsu” exchange loan, for the redemption of paper money by Government bonds, and the loans for the conversion and repayment of pensions. These measures were adopted between 1873 and 1876. Except the partial payment of the pensions, amounting to about 18,000,000 yen (the money for which was chiefly obtained from abroad), none of these internal loans represented cash transactions. The new Government was simply assuming, in a definite and convenient form, the various ill-defined obligations of the old. The total amount of the indebtedness thus incurred was about 220,000,000 *dol.*

In 1876 the peaceful reorganisation of the country was violently disturbed by the rebellion in the south-west island. New debts had to be incurred, and the repayment of the old debts was delayed. It was thought that the financial stability of the Government was only saved by the patriotism of one of the banks, which advanced a sum of 15,000,000 yen at a low rate of interest.

In 1877 the work of the development of the country was resumed. For this purpose a loan of 12,500,000 yen was issued, the proceeds to be devoted to public works. This was the first loan open to the general public and subscribed for in Japan. The nominal rate of interest was 6 per cent; the real rate on the

money received was $7\frac{1}{2}$ per cent. In 1883 a new loan was raised for the construction of a trunk line between the new and old capitals. 18,000,000 yen was raised in three years, the rate of interest paid on the amount received being something over $7\frac{1}{2}$ per cent.

In 1886 the resumption of specie payments took place. A loan of 17,000,000 yen was raised for the extension of the navy. Subscribers were numerous, and the cost in interest to the Government was under 5 per cent. In the same year the Government began the work of conversion, which has proceeded rapidly since that date. The consolidated public loan bonds at 5 per cent., issued at prices gradually rising from 100 to 108, has taken the place of the older loans at 6 and 7 per cent., with the result that the charge of the debt for interest has been reduced in 5 years from 14,000,000 yen to 12,000,000 yen.

At the same time the debt has been gradually paid off; and this year the Government obligations will be reduced to the extent of 12,000,000 yen.

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J A P A N.

TOKIO.

M. de Bunsen to the Earl of Rosebery.

My Lord, Tokio, October 1, 1893.
I HAVE the honour to enclose herewith a Memorandum by
Mr. Spring Rice relative to the Currency of Japan and the
production and movement of the Precious Metals.

I have, &c.

(Signed) M. DE BUNSEN.

Memorandum on Japanese Currency.

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I.—Coinage Regulations.

The Imperial mint at Osaka and Tokio are open for the receipt of bullion from the public—both Japanese and foreign—from 9 A.M. to noon every day in the year, except Sunday and holidays. If the mints stop on account of any extraordinary occurrence the receipt of bullion will be declined, but due notice will be given. Foreign gold or silver coins of known fineness will be received at such fineness, but will be assayed to check its value. Gold and silver bullion or coins of unknown fineness are premelted and assayed. After assay an “acceptance letter,” together with the assay report, is sent to the importer, who, after signing and returning the acceptance letter, receives a credit note for the value of the importation. Payment of coins for bullion imported is made at the Bank of Japan within a period of from 5 to 40 days after the date of “assay report,” the period varying according to the amount.

The cost of coining gold coins is 7 per mil, and that of silver yen is 10 per mil.

Bullion under 750 fineness is not received. Fees at specified rates are charged for refining. Subject to these charges bullion can be returned to the importer if he desires it without being coined.

Weight and Fineness of Coins

Five-yen gold pieces.—The highest weight permitted is 129.1 grains; the lowest, 128.1 grains.

One-yen silver pieces.—The highest weight permitted is 417.5 grains; the lowest, 414.5 grains.

Five-yen gold pieces and one-yen silver pieces.—The lowest legal limit of fineness is 898; and the highest, 902.

The standard weight and fineness of the coins are as follows:—

Description.				Value.	Weight.	Fineness.
					Grains.	
Gold	..	..	Yen	5	1,286	900
Silver	..	..	..	1	416	900
..	..	..	Sen	50	208	800
..	..	..	..	20	83.2	800
..	..	..	..	10	41.6	800
..	..	..	..	5	20.8	800

II.—Operations of the Mint.

Operations of mint for last year (ending March 31, 1893):—

The importation of foreign silver bullion was exceptionally large, and the coinage of 1-yen silver pieces exceptionally heavy.

In 1890-91 the weight of the foreign silver ingots imported was 6,000 troy ounces; in 1891-92 it increased six hundred fold, and reached the amount of 3,518,000 ounces; in 1892-93, 9,683,000 ounces.

The total amount of bullion imported or purchased during the financial year was as follows:—

Description.				Standard.	Ounces.
Gold	..	..	..	900	124,436
Silver	..	..	..	900	12,697,493
..	..	..	..	800	851,912
Nickel	..	..	..	..	1,883,460

NOTE.—At 25 per cent. of nickel.

On the figures for 1892 this shows an increase of—

Description.				Ounces.
Gold	..	..	..	60,803
Silver	..	..	..	6,438,464
Nickel	..	..	..	661,190

No 50-sen silver and no copper coins were coined.

The returns of coinage are as follows:—

Description.				Value.	Number.
Gold	..	..	Yen	5	273,981
Silver	..	..	..	1	11,653,878
..	..	..	Sen	20	2,001,107
..	..	..	..	10	6,003,312
Nickel	..	..	..	5	10,002,506

As compared with 1892 this shows an increase of—

Description.		Value.	Number.
Gold	Yen	5	49,014
Silver	"	1	3,338,648
"	Sen	10	1,000,556

And a decrease in 20-sen silver coins of 500,271.

Weight and Fineness.

The average weight and fineness of the coins struck from April to December, 1893, were:—

Description.		Value.	Weight of 1,000 pieces.	Fineness.
Gold	Yen	5	Grains. 128,604	899.99
Silver	"	1	416,004	900.01
"	Sen	20	83,197	800.33

The deviation from the standard weight for gold was 4 grains heavy per 1,000; for silver, 1-yen the same; for silver 20-sen, 3 grains light. 32 per cent. of the gold coins and 10 per cent. of the silver coins assayed were of exact 900 standard fineness.

The annual trial of pyx coins had not taken place at the date of the report, and the above results were obtained from the number of pieces delivered and their average weights, and the results of assays on 554 gold pieces, and 5,917 1-yen silver coins.

Besides the coinage, ingots of refined gold were manufactured to the value of 1,196,319 yen (at present equal to 149,540*l.*), and of silver to the value of 146,967 yen (equal to 18,370*l.*).

Since the commencement of the work of the mint in 1871 to March, 1893, the amount of coins struck is as follows:—

Description.	Nominal Value.
	Yen.
Gold	64,945,143
Silver	126,315,142
Nickel.. .. .	4,768,437
Copper.. .. .	12,418,056

The coinage of copper ceased in 1889 when the coinage of nickel coins commenced.

The weight of the 1-yen gold coin is 4444 momme = 25.72

grains ('900 fine); and of the 1-yen silver coin 7·18848 momme = 416 grains ('900 fine); *i.e.*, at the ratio of 16·17408 to 1.

The silver yen is the commercial measure of value; the gold yen is purchasable as a commodity at the following rate:—

TABLE showing the Purchasable Rate of the Gold Yen during the months of February–August, 1893.

Date.					Amount.	
					Gold Yen.	Silver Yen.
February	..	..	..	..	68·878	100
March	..	..	..	..	67·974	100
April	..	..	..	..	67·953	100
May	..	..	..	..	68·461	100
June	..	..	..	..	67·795	100
July	..	..	..	..	62·50	100
August	..	..	..	..	61·25	100

III. Currency of Japan.—(A.) Paper.

Before the restoration the ratio of gold to silver was 11 to 1. Coins varied in weight and purity according to place of origin and the province in which they circulated. In the latter days of the Shogunate the coinage was much debased, and the good coins had been exported or were hoarded and had disappeared from circulation.

The distrust of coinage thus created enabled the Government to make large issues of paper money (under a pledge of repayment in 13 years) which took the place of the former specie and notes. The measure was inevitable, as the Government had no other means of meeting its liabilities. The deficit in 1868 was 15,000,000 yen; in 1869, 10,000,000 yen; in 1872, 25,000,000 yen. At first it was found necessary to resort to severe measures to secure the circulation of the Government paper; but after two years, when the country had settled down and when confidence was restored, the paper money circulated at par with coin, and even above par. Steps were taken with a view to withdraw the paper and currency of the former Governments. The paper issued by the Feudal Governments was valued at 38,000,000 yen and represented coins of a great variety of names and values, measures of rice, domestic utensils, and even umbrellas. Government paper money to the value of 23,000,000 yen was issued in its place (1873). In 1871 the new mint was established and coinage commenced. By the end of 1873 gold coins to the value of 26,000,000 yen had been struck and silver coins to the value of 7,000,000 yen.

In the next 5 years (1873–1877) there was a gradual increase in the circulation of Government paper without, however, affecting its value. The denominations were at first of “10 rio,”

Coinage before the restoration.

Issue of paper money in the first years of the restoration.

Increase of issue of paper money. Its denomination changed.

"5 rio," "1 rio," " $\frac{1}{2}$ rio," and " $\frac{1}{8}$ rio." There was no exact measure of the value of the rio, but in 1871 the coinage regulations were instituted and the rio was made to correspond to 1-yen of gold coin.

New denominations of notes were issued. In December 1873 the total amount of paper money issued amounted to 120,000,000 yen besides Treasury bills to meet current expenses. All this paper was inconvertible.

Appreciation]
of paper.

Up to 1878 the Government paper had kept its value. In 1876 a great demand for Japanese silk resulted in an appreciation of the paper currency. Coin did not circulate in the country districts and the paper was insufficient.

National
Bank
empowered to
issue notes.

With a view to supply this want the regulations of the National Banks were altered. These banks were established in 1872, but the former regulations obliged them to redeem their own notes in specie and the result was a failure. By the new regulations the notes were made convertible into Government currency. Eight-tenths of the capital was to be in Government bonds and two-tenths held in Government currency (i.e. paper) as a reserve. Notes to an equal amount could be issued, which notes were made legal tender. The recent issue of the Pension bonds made the scheme easily feasible. The former military class could thus find employment for their capital.

In 1879 the number of banks was 153 and their note issue 34,000,000 yen, the maximum allowed under the Act.

Depreciation
of paper in
1880 owing to
large over
issue.

In 1880 the amount of paper currency circulating was estimated at about 150,000,000 yen. As a result of this large increase of inconvertible paper money and bank notes specie became appreciated. In 1880 the premium on coin was 50 per cent.; and to prevent a continued rise, a large amount of silver coin was issued. The movement of trade was however unfavourable, and in spite of various expedients resorted to by the Government, the rise in the value of silver money continued. In April, 1881, the premium on coin was 79 per cent.

Under these circumstances the Government was strongly urged to contract a foreign loan with a view of obtaining specie for the redemption of paper; but the project was not adopted.

Measures
taken to
restore
confidence.

In October, 1881, Count Matsukata became Finance Minister, and under his administration the following measures were adopted:—

National
Bank of
Japan.

I. The National Bank of Japan was established (1882). The main points of its charter were the following:—(1) It was to last 30 years; (2) the capital was to be 10,000,000 yen, one-fifth to be paid up at once; (3) the Government to take one-half of the capital and to entrust the bank with the administration of its financial business; (4) the bank to have the privilege of issuing convertible notes.

Redemption
of notes of
the National
Banks.

II. The reform of the National Banks. Their aggregate reserve was about 10,000,000 yen, and their note issue 32,000,000 yen. The reserves were to be deposited with the Bank of Japan as a fund for the redemption of the notes, together with $2\frac{1}{2}$ per

cent. of the bank's note issues. As a result of the scheme the whole of the note issue of the banks was to be redeemed in Government currency by 1898.

III. The purchase of bullion out of the reserve fund. From the year 1867 the Government had attempted to form a reserve fund for the redemption of notes. By 1872 it had reached the sum of 16,000,000 yen, and in 1883 53,000,000 yen. The Government by the issue of exchangeable notes, specie bonds, and direct purchase was enabled by 1885 to accumulate bullion and specie to the value of 40,000,000 yen, of which 13,000,000 yen were in gold. Purchase of bullion by the Government.

IV. The withdrawal of notes. Funds for the purpose of withdrawing 21,000,000 yen were obtained by annual appropriations. The sale of "Kinsatsu Exchange Bonds" supplied means for withdrawing 10,000,000 yen more. By the spring of 1885 the total amount of paper in circulation had been reduced to about 90,000,000 yen, and accordingly a notification was issued (June, 1885) that after January 1, 1886, the paper currency would be redeemed in silver "by degrees," and that the paper thus redeemed would be destroyed. Withdrawal of paper money.

In order to substitute convertible notes for the inconvertible paper the Bank of Japan was empowered to issue notes under the following conditions:— Convertible notes of the Bank of Japan.

1. Against an equal amount of gold or silver coin or bullion.

2. Against Government bonds. Treasury bills, deeds, and commercial bills.

The amount not to exceed 700,000,000 yen, subject to a reduction in proportion to the redemption of National Bank paper.

3. If considered advisable, the bank was empowered to issue notes in addition to this sum, paying a tax of 5 per cent. per annum on the amount issued.

The bank was to lend 22,000,000 yen to the Government at first at 2 per cent., and afterwards without interest, to be employed for the redemption of paper currency.

The result of these operations since 1883 has been that the Government paper money in circulation has been reduced from 98,000,000 yen to the present amount of 23,000,000 yen. The convertible notes of the Bank of Japan have increased from 4,000,000 yen in 1885 to 110,000,000 yen. Present state of paper currency in Japan.

The amount of the National Bank notes has been reduced from 34,000,000 yen to 23,000,000 yen.

The reserve and securities of the Bank of Japan amount to 136,000,000 yen, of which 22,000,000 yen is in gold coin and bullion, 64,000,000 yen in silver, and the rest in bonds, bills, &c. Metallic reserve of Bank of Japan.

This shows a considerable increase on last year, when the reserve and securities amounted to 116,000,000 yen, and the notes in circulation to 94,000,000 yen. The silver reserve has increased from 43,664,000,000 yen, and the gold decreased from 22,700,000 yen to 21,806,000 yen. Decrease of gold.

B.—Metallic.

Opening of the mint.	In 1871 the mint was opened for the reception of bullion. Gold coins of 20 yen, 10 yen, 5 yen, 2 yen, and 1 yen are struck, as well as silver of 1 yen, 50 sen, 20 sen, 5 sen. During the first year the nominal value of the coins struck was—gold, 14,488,980 yen; and silver, 5,689,685 yen.
Single gold standard.	The standard weight of the gold yen was 25.72 grains; and the silver yen 416 grains, both 90 fine.
Trade dollar.	The gold yen was the unit and was legal tender to any amount. For convenience of commerce at the open ports a silver trade dollar of 420 grains was coined for Japanese or foreigners on application. It was to be used solely in the payment of import and export duties and all other taxes at the open ports, and in operation between Japanese and foreign merchants. It was unavailable for the payment of internal taxes, and was not to be generally current, though any persons could use it by mutual agreement in making or receiving payments. The relative value of the silver trade dollar and the standard gold coin was declared in 1875 to be at the rate of 100 silver yen for 101 gold yen.
Abandonment of single gold standard. The silver yen legal tender.	It was found, however, that the new silver coins were melted down while the old Mexican dollars, though inferior in weight, were alone current, and in 1878 the coinage of the trade dollar was abolished, and the coinage of the dollar of 416 grains resumed.
Bonds issued in exchange for paper money.	In 1878 it was finally resolved to abandon the simple gold standard. By a notification, dated May 27, the yen of 416 grains and 900 fineness was made universally current in all public and private transactions and without limit. In 1879 it was declared on the part of the Government that the silver yen would be received at par with the Mexican dollar by every Department. European banks followed suit. In 1883 the payment of interest in the Kinsatsu Exchange Bonds,* originally to be made in gold or silver, was made payable in silver alone.

Operations of the Mint, and Production, Export, and Import of Gold and Silver.

Output of the mint.	From the commencement in 1871 to March 31, 1873, the gold coins struck were of the nominal value of 65,000,000 yen, and the silver coins of the value of 130,000,000 yen.
Excess of gold export over gold import, and silver import over silver export.	From 1872 to 1892 the value of the export of gold from Japan amounted to about 70,000,000 silver yen, and of silver to 106,000,000 yen. In the same period the import of gold amounted to the value of 10,000,000 yen, and of silver to 124,000,000 yen. The import

* See "Report on National Debt of Japan," M. de Bunsen's, Miscellaneous Series No. 299, 1893.

of gold was almost entirely bullion, principally from Corea, and the export Japanese coin, old and new.

Out of the 70,000,000 yen exported 55,000,000 yen worth was in "Japanese gold coin," and 9,000,000 yen in "Nibu" and "Nishiu" (old coin). Thus about nine-thirteenths of the gold coins struck in the mint have been exported. In 1892 about 1,000,000 yen (gold) was struck, and more than 6,000,000 yen exported. From 1888 to 1892 the amount struck was 6,000,000 yen (nominal value), and the amount exported was 8,000,000 yen (nominal value).

The product of the mines from 1885 to 1891 was, gold about 108,000 ozs. and silver about 7,460,000 ozs. This product if correct would have been upwards of 2,000,000 gold yen and 8,000,000 silver yen, or an average of 333,000 gold yen and 1,333,000 silver yen per annum. The table annexed (Note B) will show that the production of silver is relatively increasing.

It is plain that if the present rate of depletion continues there will be soon very little gold left in the country. Since last year the value of the gold coin and bullion held in the Bank of Japan has diminished from 22,700,000 yen to 21,806,000 yen, while the value of the silver coin and bullion has largely increased.

Note A.

In the three months ending July 31 last the exports of gold coin amounted to 520,000 yen in value, and the imports of gold bullion to 135,000 yen. In the same three months the export of silver exceeded the import: the export amounting to 4,500,000 yen and the import to something over 1,000,000 yen.

Note B.

PRODUCT of Japanese Mines.*

Year.					Gold.	Silver.
					Ounces.	Ounces.
1885-86	..	..	..	..	8,827	767,656
1886-87	..	..	..	..	14,263	1,084,852
1887-88	..	..	..	..	16,768	1,147,113
1888-89	..	..	..	..	19,057	1,376,436
1889-90	..	..	..	..	24,709	1,382,611
1890-91	..	..	..	..	23,632	1,703,878

* "Résumé Statistique," p. 26.

Note C.

The amount of gold and silver coinage actually in circulation at the end of August, 1893, was officially estimated as follows:—

Description.						Value.
						Yen.
Gold	..	..	..	..	..	5,837,892
Silver	..	..	..	..	..	26,481,307

This total is arrived at by subtracting the amount of reserve in the Bank of Japan and the amount exported from the total coinage.

The amount of old gold and silver coinage in Japan at the end of March, 1892, was estimated as follows:—

Description.						Value.
						Yen.
Gold	..	..	..	..	..	68,350,683
Silver	..	..	..	..	..	20,106,617

Since March, 1892, the net import of silver was about 21,000,000 yen and the net export of gold about 8,000,000 yen in value. At that date the gold and silver coinage, old and new, was estimated at (gold) about 83,500,000 yen in value and (silver) about 81,500,000 yen.

This estimate leaves out of account the coins melted down, lost, or exported without record being kept. It is probably largely beyond the mark. All the gold which appears in the market is bought up for export, and the 22,000,000 yen's worth of gold in the Treasury is all which can be said with certainty to exist in Japan.

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MEXICO.

Mr. Bland to the Marquis of Salisbury.

My Lord,

Mexico, August 4, 1892.

I HAVE the honour to transmit to your Lordship herewith the English translation of the new Mining Law which has recently been published. This Law came into effect on the 1st ultimo, and its provisions vary considerably from those of the Mining Code previously in force.

The following are some of the principal changes instituted by the new Law :—

1. Under the Mining Code the titles to mines were valid so long as these were worked, whereas under the new Law the title to mining claims already owned or hereafter acquired is dependent only on the payment of the newly-created Federal Tax.

2. Under the Code the title was obtained by a denouncement filed with the Mining Deputations ("Diputaciones de Minería") of the district. By the new Law the title is secured by means of a petition addressed to the agents of the Department of Fomento (Public Works, &c.), the final title being issued by the said Department.

3. According to the Code only a limited number of claims could be owned by any individual or company. The new Law places no restriction on the number of claims that can be owned.

4. Under the Code the size of claims varied according to the lay of the vein and the nature of the mineral. Under the new Law a claim is subject to no alteration whatever, no matter what the lay of the vein may be.

5. Under the new Law the organisation of all mining companies will be regulated by the Commercial Code, whereas formerly they were subject to special rules.

6. "Avío" agreements (contracts for furnishing money to the miner) will in future be treated as agreements of partnership, or as mortgages, subject in the first instance to the Commercial

Code, and in the second to the Civil Code in force in the State where the mine may be located.

7. Alterations have been made in the regulations as to trespassing claims, working of mines, and opening of shafts.

8. With regard to taxes the Law of July 6, 1887, authorising the several States to collect up to 2 per cent. on the gross earnings of mines remains in force, and the new Law establishes a further annual Federal Tax of 10 dols. on each claim of 100 metres in length, as a condition of the title.

9. Under the new Law "Mining Deputations" are done away with, and in their place Special Agents of the Fomento Department are to be appointed.

Speaking generally, the new Law would seem to be in many respects an improvement on the old Code, but there are not a few objections raised to it, principally on the part of the smaller miners, which, however, appear to centre upon the taxes and other charges to be levied. One grievance is that those who had denounced mines under the old Code now find that they have to pay the cost of taking out a new title, as well as a tax not contemplated when they made their denouncements, and they consider that the new Law should not have been made applicable to them.

It seems, however, not improbable that the new Law may undergo some modifications when Congress again meets.

I have, &c.,
(Signed) GODFREY D. BLAND.

Translation of the New Mining Law of Mexico.

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DEPARTMENT OF STATE

And of the Expedition of Development, Colonization and Industry of the Mexican Republic.

SECTION THIRD.

The President of the Republic has been pleased to send me the following decree :—

PORFIRIO DIAZ, Constitutional President of the United States of Mexico, makes known to their inhabitants :

That the Congress of the Union has thought well to decree as follows :—

The Congress of the United States of Mexico decrees :

MINING LAW OF THE UNITED STATES OF MEXICO.

SECTION I.

Mines and Mining Property.

Art. 1. Mining property in the United States of Mexico shall be governed by the following bases, which will be regulated by the Executive Government in accordance with its constitutional faculties.

Art. 2. Subject to the present law are those mineral substances which cannot be worked unless a previous concession be obtained, and those for whose extraction work is required which may put in danger the lives of the workmen, the safety of the workings, or the stability of the surface.

Art. 3. The mineral substances, for working which a previous concession is required under any circumstances, are those which are hereafter enumerated, whatever be the nature, shape or situation of their respective ore bodies :—

a. Gold, platinum, silver, quicksilver, iron, except marsh ores, loose surface ores and ochres which are worked as colouring matter; lead, copper, tin, except float tin; zinc antimony, nickel, cobalt, manganese, bismuth and arsenic, be they found in native state or mineralised.

b. Precious stones, rock salt and sulphur.

Art. 4. The owner of the ground can work freely, without necessity for a special concession in any case whatever, the following mineral substances :—

The mineral combustibles, oils and mineral waters; the rocks of the ground in general, whether they serve directly or form part of materials for construction or ornamentation; the

matter which forms the ground, as earths, sands and clays of all kinds; the mineral substances excepted from concession in Art. 3 of this law, and generally all those that are not mentioned in the same.

Superficial or subterraneous excavations which the working of any of these substances may require, shall always be subject to the regulations which are decreed for order and security in the mines.

Art. 5. Legally acquired mining property, and that which in future will be acquired in accordance with this law, shall be irrevocable and perpetual as long as the federal property tax has been paid, in accordance with the regulations of the law by which the said tax is established.

Art. 6. The newly acquired primordial mining title will be given by the Department of Development according to the regulations of this law.

Art. 7. Mining property, except in the case of placers and superficial ore bodies, is understood to be only underground, and does not include the surface, which continues under the dominion of its owner, except that part of the same which the miner has to occupy in the cases and under the conditions mentioned in Art. 11 of this section.

Art. 8. The taking out of produce from a mine is completely limited by the respective boundaries, and only can these boundaries be passed in accordance with the provisions of the regulations, when the ground is unoccupied and after previous request for the respective amplification of the concession.

In order to enter into another's field, the consent of the owner is absolutely necessary, except in cases of legal right of way.

Art. 9. The water brought to the surface and coming from subterraneous workings of mines belongs to the owners of the same, and the regulations of the common law have to be observed in regard to the rights of owners of the ground through which these waters pass.

Art. 10. The work done for opening and utilising mines and placers is for public benefit, therefore, in case of non-agreement forcible expropriation can be proceeded with for the ground necessary for this object.

Art. 11. The mining concessionist is free to make arrangements with the owners of the surface ground for the occupation of the surface he needs, in order either to work placers or superficial ore-bodies or to establish buildings and other mining requirements, but in case both parties do not come to an agreement in regard to extent or price, the expropriation will be proceeded with through means of the local Judge of First Instance, the following proceedings being observed until Art. 27 of the Constitution be regulated:—

I. Each party shall name an appraising expert, and both experts shall present their valuation within eight days' time, counted from the day they received their appointment. If the

appraisers do not agree, the judge will name a third expert as umpire, who shall give his decision within the peremptory time of eight days counted from his appointment. The judge, taking into account the opinions of the experts, and the proofs which both parties present to him whilst the experts are preparing their statements, shall fix the superficial extent and the amount of the indemnity within the next eight days following. The decision of the judge shall be binding, and against it there shall be no other recourse but that of responsibility.

II. In case the owner of the ground which needs to be occupied does not name his appraising expert within eight days after being notified by the judge, this functionary shall officially name an appraiser to represent the interest of the owner.

III. In case it be uncertain or doubtful who is the possessor or owner of the property which has to be occupied, the judge shall decide as amount of indemnity the sum resulting from the appraisements of the expert named by the concessionaire and of the one which he himself appointed in representation of the legitimate owner, and shall make deposit of said amount in order that the same be delivered to the corresponding party.

IV. The experts, in making their appraisements, shall base these on the value of the surface ground, the damage which immediately results to the property, and the rights of way which are to be established on the same.

Art. 12. Mining property and other ordinary property bounding on it, shall, as the case may be, have the privilege of and be subject to legal right of way as regards free passage, conveyance of water, drainage and ventilation, and the judges shall conform in their decrees regarding the same and the corresponding indemnities to the legislation of each state, Federal District or Territory, unless the same be modified by the following ruling:—

I. The legal right of way of drainage consists: on the one hand, in the obligation which according to Art. 21 of this law the owner of a mining field is under, to indemnify the owner of another field for the damage done to him by not keeping up the draining of the subterraneous workings, or not draining sufficient to keep the water from flowing from one to the other: on the other hand, in the obligation which all owners of mining fields are under, to permit the passage through their ground of tunnels or adits whose exclusive and necessary object is the drainage of one or various workings.

II. The drainage tunnels, when not driven on the strength of the contract authorised by Art. 23 of this law, can only be undertaken by the owner or owners of mining fields to whom the tunnel is an absolute necessity.

III. In the case supposed by the foregoing clause, all the owners of mining fields which derive benefit from the drainage obtained through the tunnel, shall be obliged to pay their part

of the indemnification, in proportion to the benefits received, taking into consideration the nature and the condition of the mine.

IV. The driving of a tunnel shall not be commenced without previous permission given by the Department of Development, after hearing the opinion of the respective mining agent and after examination and approbation of the drawings, in which the direction and the section of the projected tunnel shall be detailed.

V. The paying ore, found while driving the tunnel, shall belong, in case it is encountered in lawfully conceded mining fields, to the owners of these, and if found in unoccupied ground, it shall be divided amongst the owners of all the fields which are benefitted by the tunnel, in the proportion established by the foregoing Clause III.

VI. If, when a tunnel is being driven and one or more veins are discovered in unoccupied ground, a request be made for the grant of the respective fields or of the unoccupied surplus parts, then the orders of Arts. 14 and 17 relative to this law shall be applied, considering those who undertook to drive the tunnel as explorers, in accordance with the final part of Art. 13.

VII. Once the permission mentioned in the foregoing Clause IV being given by the Department of Development, only in virtue of a special contract can other persons but those who receive benefit from the tunnel be considered as members of the undertaking.

VIII. Whilst the tunnel is being driven in his or their respective properties, the owners of mining fields which are crossed by the drainage tunnel can appoint a controller in their confidence, whose functions shall only extend to watching the work and giving notice to the mining agent or to the judge, as the case may require, of any abuse he may observe.

IX. In those places of the drainage tunnels, which through whatever reason do communicate with mine workings, bars shall be put up which shall impede roadway or passage, as soon as the communication is made.

X. Only in virtue of a unanimous understanding, expressed in a public document, between the parties interested in a general drainage tunnel in accordance with the foregoing Clause III, can the tunnel be used for any other object but drainage. In this case, under penalty of nullity, all particulars regarding passage or transit, indicated in the foregoing Clause IX, shall be stated in the contract.

XI. The mines newly opened in places where they may be benefitted by general drainage tunnels already existing, will be subject to the provisions of Clauses III, VII, VIII, IX, and X.

XII. The legal right of way for ventilation consists in the obligation of every owner of mining fields to permit that owners of neighbouring fields to communicate with his under-

ground workings, so that the communication may produce, as a necessary result, the ventilation which could not be obtained in other ways except at great expense.

XIII. Unless by special contract to the contrary, made into a public document by the owners of the properties giving and receiving the benefit, there shall always be placed a barred grating to impede transit or passage at the boundary line of the respective properties.

XIV. When a communication, different from the one described in Clause XII, actually ventilates one or more workings, neither this service of producing ventilation shall give a right to the miner who made the communication, to exact indemnity from the owners of the other workings that have been ventilated, nor shall these on their side acquire a legal right of way which burdens the mining property which furnished the ventilation.

XV. If while driving workings, opened for the purposes mentioned in Clause XII, paying ore be found, the provisions suitable to the case of Clauses V, VI, and VIII shall be observed.

XVI. Also the provisions of Clause IV shall be observed as far as they suit the case.

XVII. All the expenses occasioned by the workings which may have to be made in order to obtain ventilation, and those for keeping them in future in good condition, shall be exclusively for account of the party who requested the establishment of the right of way (of ventilation).

XVIII. For the establishment in future of a legal right of way to the benefit of one mining property and to the burden of another there shall be necessary: either, the consent of the owner of the burdened property, stated in a public document or in a declaration signed and ratified before the judicial authorities or an administrative resolution agreed to by the interested parties, or a judicial sentence.

XIX. The owner of mining fields, who wishes to acquire a legal right of way, which does not receive the consent of the party who considers himself burdened by the same, shall apply to the Department of Development which shall decide, within the space of time and with the formalities established by the regulations, whatever it judges opportune, always hearing beforehand the dissenting party. In case either the latter or the petitioner do not agree to the administrative resolution, the right is reserved to them to apply to the respective local tribunals within the time specified by the regulations. The decision shall be communicated by the tribunal which gives the same to the Department of Development.

XX. In case the administrative decision be favourable to the petitioner and adverse to the opposing party, it can only be acted upon immediately by the petitioner giving bonds, satisfactory to the Department of Development, for the in-

demnification of any damages, in case the opposing party receive judgment in his favour in the courts.

XXI. The ruling of the three preceding clauses is applicable to all cases in which that which is ordered in the other clauses may give rise to judicial contests.

SECTION II.

Explorations, Mining Fields, and Mineral Concessions.

Art. 13. Any inhabitant of the Republic can freely make, in Government ground, explorations conducive to the discovery of mineral bodies, but if instead of borings excavations should be made, these shall not exceed ten metres in extent, neither in length nor in depth. No licence shall be necessary for this work, but previous notice shall be given to the respective authorities, according to the provisions of the regulations.

In ground of private property, no mining explorations can be made without the permission of the owner or his representative. In case, however, that this permission cannot be obtained, it can be requested from the respective administrative authorities, who shall give the same in accordance with the provisions of the regulations, bonds being previously given by the explorer for the damage which may be caused, to the satisfaction of the authorities, after hearing the owner of the ground or his representative.

Inside of private buildings or their belongings, explorations can only be made with permission of the owner. No explorations shall be permitted inside the precincts of populated places, public works, public buildings or fortifications or in their neighbourhood. The regulations shall fix in all these cases the minimum distance within which said works of investigation can be allowed.

During three months' time, which can not be prorogued, counted from the date of the notice of the permission or of the administrative resolution mentioned in this article, only the explorer shall have the right to receive mining fields.

Art. 14. The unit of concession, or the mining field ("pertenencia") in future shall be a solid block of unlimited depth, defined above-ground by that part of the surface which in horizontal projection gives a square with sides 100 metres long, and bounded under-ground by the four vertical planes corresponding to the same.

This unit of mining field ("pertenencia") is indivisible in all contracts made about mining concessions, or which affect the ownership.

Art. 15. Except as regards the final disposition of Art. 13 of this law, the concessions shall belong and shall always be given to the first applicant, and shall embrace in all cases in which there is sufficient free ground the number of mining

fields which the interested party may ask for, but he shall clearly specify, in accordance with the dispositions of the regulations, the situation which the fields ("pertenencias") which form his grant occupy.

In case there remain between the mining fields granted and others already existing, a space less than the unit of mining grants, this space shall also correspond and be given in property to the first petitioner.

SECTION III.

Mode of acquiring Mining Concessions.

Art. 16. The Department of State and of the Expedition of Development shall name in the States, Territories, and in the Federal District special agents in its service, before whom the applications for mining concessions shall be presented. These agents are authorised to collect fees according to the tariff to be fixed by the Department mentioned.

Art. 17. The agents of the Department of Development shall receive the applications for mining concessions, and shall note down immediately on the Register the day and hour of presentation. They shall thereupon proceed with the publication of the application and the measurement of the fields ("pertenencias") by the expert or the practical man whom they shall appoint, and in case there be no opposition, they shall send a copy of the proceedings and of the map to the Department of Development for the corresponding approbation and the extension of the titles.

The Regulations shall fix the time within which these acts have to take place, and shall detail the mode of procedure of the agents.

Art. 18. The approbation of the proceedings being obtained and the title to the property having been given in favour of the concessionaire, the latter enters into possession of the mining fields without further formality.

Art. 19. The agents of the Department cannot suspend the proceedings for any reason whatever, unless there be opposition. When once the time is up which is fixed by the regulations, they shall be obliged immediately to send the protocol of the proceedings, in whatever condition it may be, to the Department of Fomento, so that after examination it declare the tardy applicant rejected, should the fault be his, or hold the agent responsible, if through him the case has been delayed. The tardy applicant cannot again petition for the same concession.

Art. 20. When opposition is made by the owner of the surface ground to the request for any mining concession or to the making of the respective measurements, and he claims that the ore deposit does not exist, then, if there be found indications of a deposit on the surface, or any excavations or

workings of exploration in the deposit itself, the agent of the Department of Development shall reject the opposition. In case that no indications of any ore body exist on the surface of the ground, and there be no excavations or workings on the same, then a proceeding analogous to Section 11 of this law shall be followed, the respective judge deciding whether or not the concession shall be granted. His decision can be appealed against in both cases. The decree shall be communicated to the Department of Development.

Art. 21. The agents of the Department of Development shall suspend proceedings in case there be opposition, and shall send the protocol to the Judge of First Instance of the respective place for the legal decision of the corresponding judgment. The judicial authorities shall advise the Department of Development of their decision.

SECTION IV.

General Dispositions.

Art. 22. The working of mineral substances, whether they belong to those that are acquired through a concession according to this law, or to those that belong to the owner of the surface, shall be subject to all the dispositions which the provisions of this law may dictate in regard to police regulations and the security of the workings themselves, but if the owners conform to the regulations, they will, on the other hand, have complete liberty of industrial action, to work in the way that suits them best, to hurry, delay, or suspend for more or less time their work, to employ the number of workmen they wish and wherever it suits them best, and finally to follow whatever system they prefer as regards workings, extraction, drainage or ventilation, as they consider most suitable to their own interests. The owners, however, remain responsible for the accidents which happen in the mines on account of their being worked badly, and for damages occasioned to other properties by reason of not taking out water, or any other circumstance which may impair the interests of others.

Art. 23. When, in order to hurry the work in the mines of a locality, the necessity arises for making drainage tunnels, the execution of these workings shall be a matter of contract between the interested parties.

Art. 24. The partnerships or companies formed for working mines shall be governed by the dispositions of the Commercial Code, except as regards Association which are not admissible in mining matters.

Art. 25. The contracts for furnishing money to the miners, named until to-day "avio," shall in future have the character, either of partnership, in which case the provisions of the foregoing article shall be observed, or of mortgage. The mort-

gage, in mining matters, can be freely given in accordance with the regulations of the Civil Code of the Federal District, but the indivisibility of the mining field ("pertenencias"), established in Art. 14 of this law, shall be taken into account, and the regulations of the Commercial Code, as regards the Register, shall be observed, and for this purpose a special book of mining operations shall be opened. The holder of the mortgage shall always have the right to pay the tax mentioned in Art. 5 of this law, and shall through this payment acquire a right of preference over the owner of the mine in regard to his own mortgage.

Art. 26. The mortgage may be divided into mortgage bonds to name or to bearer, either in the titles which constitute the debt or by a later document. In every case it shall contain the dispositions organising the social representation of the holders of the bonds. These dispositions, and also those relating to the amount of the debt, to the conditions of the same and to the guarantee, shall appear in print on each of the mortgage bonds.

The holders of the mortgage bonds can only take action against the debtor or the mortgaged property through their common representative, whose acts as regards their rights shall be obligatory on all the holders.

Art. 27. The trials by court in mining matters shall take place and be decided in the Federal District and Territories and in each State before the judges and tribunals, which there are competent according to the regulations of the Commercial Code, and also shall be observed that which is prescribed in Chap. IX., tit. i., bk. 4 of the said Mercantile Code, based on this, that the first expense of the administration indicated in the second clause of Art. 1,030 of the same Code, is the payment of the tax.

Art. 28. The new tax, which shall be paid by all mining concessions, with the exception of those which are expressly exempt by contract, shall be a Federal tax on the property, and shall be established by the respective special law.

As regards the other taxes on mining, the dispositions of the law of June 6, 1887, shall be observed.

Art. 29. Default of payment of the property tax, levied in accordance with the regulations and procedure of the law which establishes the same, shall constitute, from the date that this present law gets into force, the only reason for forfeiture of mining property, which in this case remains free of all burden and shall be conceded to the first applicant, in accordance with the provisions of this law and its regulations.

Art. 30. The industrial branch of mining shall belong to the Department of State and of the Expedition of Development, Colonisation and Industry, which, therefore, can dictate, in accordance with the regulations of this law, all the measures it judges necessary for the promotion of the prosperity of the mining industry, and which shall watch that the said law be

enforced. It shall name the inspecting mining engineers it may think necessary, to visit the workings of mines or mineral substances, to study the same, to make investigations, and to fulfil in general whatever commissions the Department may give them, in accordance with the details prescribed by the regulations.

Art. 31. The Executive Government shall fix, according to the terms of Art. 21 of the Federal Constitution, the Governmental punishments which those incur who infringe the dispositions of the regulations which it issues for the enactment of this law.

The official transgressions for which the agents of the Department of Development are responsible, shall be judged by the judges of the corresponding district according to the respective laws.

The ordinary transgressions committed in the mines remain subject to the corresponding territorial judges, this, however, shall not interfere with the Governmental punishment, should the administrative Federal Authorities impose same.

Art. 32. The establishment and working of mills and all kinds of metallurgical works shall be guided by the regulations of the common law, and, as regards taxes, by those of the law of June, 1887.

Art. 33. There remain exempt from taxes that part of the tunnels situated outside of properties, when these are destined exclusively for the ventilating, draining, and extracting of minerals that do not proceed from the said tunnels.

SECTION V.

Transitory Provisions.

Art. 1. The denouncements of mines or surplus ground ("demasias"), which are in procedure when this law goes into force, shall be continued and substantiated, and shall be decided according to the provisions of the same.

Art. 2. The surplus ground or open spaces existing between neighbouring mining properties, and which have not been denounced when this law takes effect, shall correspond and shall be given to the first party who applies for the same.

Art. 3. The contracts for the exploration and working of mining zones made with the Department of State and Expedition of Development, Colonisation and Industry which are in force when this law takes effect, and in virtue of which the concessionaires are complying with the respective stipulations, shall remain in force for the whole time of their duration if the concessionaires so desire. The concessionaire can, however, within a year's time counted from the date this law goes into force, choose the provisions of the new law; and as soon as he makes declaration to this effect before the Department, he

shall be relieved by the same from the obligations which said contracts imposed on him, and shall receive again the corresponding deposit. Remaining subject to this law and its regulations only, he shall acquire and conserve perpetually his mining concessions as long as payment is made of the Federal property tax.

Art. 4. Existing mining properties which are being worked or are held by special permit ("amparo") when this law goes into force, notwithstanding that they are not in accordance with the same, shall remain in subsistence, and the mines shall retain their fields with whatever measures they may have, though these be different from those now established.

As regards the tax, however, the unit mentioned in Art. 16 of this law shall serve as a basis.

The owners, however, can ask for a rectification of the concession and for a new property title.

Art. 5. The contracts for furnishing money to the miner ("avio") and all those relating to mining business, which are in existence when this law takes effect shall be governed by their respective stipulations and as regards points which may have been omitted, by the mining law which was in force at the time these contracts were made; but it shall be indispensable to the validity of the future operations which have their origin in these contracts, that these be registered according to the dispositions of Arts. 24 and 25 of this law, within a year's time counted from the date it takes effect.

Therefore, whenever a mining business is transferred, under whatever pretext, to a third owner, the latter shall be responsible for the obligations resulting from said contracts, supposing that any question in court should arise from the same.

Art. 6. The work which is being done in the mining field ("pertenencias") of another owner in accordance with the law still in force, cannot be prosecuted after the date on which this present law takes effect, unless it have the consent of the owner of this field.

Final Provisions.

Only Article. This law will go into force in the whole Republic on July 1, 1892, and from that date the mining code of Nov. 22, 1884, and the circular orders and provisions relating to the same shall be abolished.

Art. 10 of the Law of June 6, 1887, shall also be abolished, from the date of the promulgation of this law.—ALFREDO CHAVERO, President of the House of Representatives; V. DE CASTAÑEDA Y NÁJERA, President of the Senate; JOSÉ M. GAMBOA, Secretary of the House of Representatives; MARIANO BÁRCENA, Secretary of the Senate.

Therefore, I order that the same may be printed, published, circulated, and given full compliance.

Given in the Palace of the Executive Government of the Union, in Mexico, on the 4th day of June, 1892.—PORFIRIO DIAZ.

To citizen Manuel Fernández Leal, Secretary of State and Expedition of Development, Colonisation and Industry.

And I communicate the same to you for your knowledge, and subsequent results.

Liberty and Constitution, Mexico, June 4, 1892.

M. FERNÁNDEZ LEAL.

DEPARTMENT OF THE TREASURY.

SECTION No. 8.—DIVISION No. 2.

The President of the Republic has been pleased to send me the following Decree:—

PORFIRIO DIAZ, Constitutional President of the United States of Mexico, makes known to their inhabitants:

That the Congress of the Union has thought well to decree as follows:—

The Congress of the United States of Mexico decrees:

Art. 1. In accordance with the provisions of the articles relating to the new mining law, there shall be established a Federal property tax, which shall consist of two parts: one part, which has to be paid once only in stamps to be fixed to all titles of mining property, and the other part which has to be paid yearly for each one of the mining fields of which a grant is composed.

As regards the tax, the mining field ("pertenencia"), or unit of concession, shall be the one established by Art. 14 of the new mining law. Consequently, all old and new mining fields existing in the Republic, whatever be their extent, shall be valued according to this unit.

For the fractions of mining fields that amount to one half or more, the tax shall be paid as if they were whole fields, and nothing shall be paid for the fraction that is less than one half.

Art. 2. Within the unprorogable space of time, counted from the promulgation of this law until the 31st October of the present year, every owner or actual proprietor of mines, whatever title he may have, shall be obliged to present his documents to the office of the Treasury which the regulations of this law may determine, so that the new stamps of ownership of the mines may be fixed to the title, and account may be taken, for the payment of the annual contribution, of the number of mining fields ("pertenencias") which form the property, a corresponding Register being opened for this purpose.

The titles which, in future, the Department of Promotion will extend in accordance with the new mining law, have to carry the stamps corresponding to the same. These stamps shall be furnished by the party receiving the grant, and shall be in proportion to the mining fields ("pertenencias") which the grant contains.

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Art. 3. The property stamps of the mines shall be of the value of ten dollars, and have to be affixed to the titles of the property, one for each mining field of ten thousand square metres. The rule established in Art. 1 to be followed as regards the fractions.

These stamps have to be cancelled by the office of the Treasury authorised to receive the titles which were extended up to the 30th of June of the present year; the Department of Promotion cancelling those belonging to the titles which are extended in accordance with the new mining law.

Art. 4. From the 1st of July of the present year, all owners or proprietors of mines shall be obliged to pay the sum of ten dollars annually for each one of the fields ("pertenencias") of which their grants are composed.

The amount of the tax shall be the same whatever is the nature of the substance which is being worked, in the understanding that the mine has been acquired through denouncement or by special grant before the date on which the new mining law takes effect, and that in future it shall be acquired by grant and title in accordance with the new law.

Only those mines shall be exempt from the payment of the annual contribution on mining fields and of the stamps on the titles of the property, which have been expressly freed from the same by contracts made with the Executive Government, in virtue of the authority given by the Legislature, and approved by the same. This exemption shall only last for the time stipulated in the contract, without opportunity for proration.

Art. 5. The yearly property tax on mines shall be paid in three advance payments during each fiscal year, this payment to be made during the first month of each one third part of the year, in the office of the Treasury which the regulations of this law shall determine, and to which the taxpayers are obliged to go in order to make their payments, without further need of notification, or any other requisite on which they might found delay or excuse.

Art. 6. Failure of presentation of the title which secures the possession of the mine within the time fixed in Art. 2, shall be punished by a fine equal to the amount of the stamps which the title has to carry, if the same be presented within the two months following the expiration of the time allowed. For every two months more that the presentation is delayed, the holder shall incur a fine equal to the amount of the stamps.

The concealment of the number of mining fields shall be punished with a fine equal to double the amount of the stamps which the title ought to have had for the conceded mining fields ("pertenencias"), to which shall be added double the amount of the yearly tax for the whole of the time that the same has not been paid. This shall not interfere with the civil or criminal responsibility to which the concealer is liable, and to which he shall be subjected in due time.

Failure to pay the annual property tax within the first month of each one third part of the year, shall cause the owner to incur a fine amounting to fifty per cent. of the amount of the tax in case he pay during the second month.

If the payment be made in the third month, the fine shall be equal to the amount of the tax. When once this last named space of time has expired without the tax and the accumulated fines being paid, the mining property shall be lost to the owner without recourse whatever. The Department of the Treasury shall make the corresponding declaration, and shall publish the same in the official paper so that any other party may petition for the property.

Art. 7. When the owner of the mine sells the same, he shall give the respective notice for annotation in the Register, and the bill of sale which is given shall carry the stamps which according to the stamp tax it should have.

Art. 8. In case it no longer suits any person or company to continue working the mine or mines which he or it may possess, the corresponding office of the Treasury shall be advised in writing, so that the tax may be settled up to the date of the notification and the corresponding annotation be made in the register.

ALFREDO CHAVERO, President of the House of Representatives; V. DE CASTAÑEDA Y NÁJERA, President of the Senate; JUAN BRIBIESCA, Secretary of the House of Representatives; MARIANO BÁRCENA, Secretary of the Senate.

Therefore I order that the same be printed, published, circulated, and given full compliance.

Given in the palace of the Executive Government of the Union, in Mexico, on the sixth day of June, 1892.—PORFIRIO DIAZ.—To the Secretary of State and Expedition of the Treasury and Public Credit. Citizen Matías Romero.—Present.

Liberty and Constitution. Mexico, June 6th, 1892.—ROMERO.

MINING REGULATIONS.

Department of Development, Colonisation and Industry of the Mexican Republic.—Section 3.

The President of the Republic has been pleased to address me the following decree :

PORFIRIO DIAZ, Constitutional President of the United States of Mexico, to the inhabitants thereof, be it known :

That by virtue of constitutional faculty vested in the Executive and in conformity with Art. 1 of the law of June 4th of the present year, I have seen fit to decree the following

REGULATIONS FOR ADMINISTRATIVE PROCEEDINGS REGARDING MINING.

CHAPTER I.

Of Agents.

Art. 1. The special agents, dependent on the Department of Public Works, and appointed by the said Department wherever judged necessary according to Art. 16 of the law, for any mining districts, shall receive and transmit all petitions for mining concessions and extensions presented to them, and shall exercise all the other functions marked out by the law and its regulations.

In the event of any doubt on the proper application of the law the agents shall consult the Department of Public Works.

Art. 2. At the time of making the appointment the jurisdiction of each agent shall be clearly defined, and the same, as well as any ulterior amendment thereof published in the *Diario Oficial*, the Government official organ.

Art. 3. The following requirements must be complied with in order to fill the position of Agent of the Department, viz. : The applicant must be a Mexican citizen in the possession of his legal rights, and he must fill no other Government position in the State, Territory, or Federal District.

Art. 4. With each agent appointed at the several mining districts, a number of substitutes shall be designated in proportion to the magnitude of business developed in that district.

These substitutes must possess the same qualifications as the agents themselves, and will represent the latter during any temporary or permanent absence as well as on all occasions where legal impediment may occur, the substitute being previously called upon by the respective agents.

Art. 5. Legal impediments in the way of agents shall be considered all such as for the magistrates are set forth in fractions I to IX. and XII. of Art. 1,132 of the Commercial Code.

Art. 6. In case of death or serious illness preventing the agent from notifying his substitute, the latter shall enter into the former's functions without loss of time, giving the Department due notice thereof through the mail, or by telegraph where such exists.

Art. 7. The mining agents shall give the public due notice as to their place of business and hours devoted thereto, which business shall not be interrupted except on Sundays and national holidays.

Art. 8. The agents shall receive no other fees for their services than those set forth by the respective tariff, and in any case not specified therein they shall consult with the Department as to the amount to be charged.

Art. 9. During the first ten days of each month the agent must forward to the Department of Public Works a detailed report of all petitions for mining concessions, presented to him during the previous month.

CHAPTER II.

Of Explorations.

Art. 10. Each and every inhabitant of the Republic shall have the right to carry on mineral explorations on any section of national lands, due notice thereof being given the agent, at the respective zone, as prescribed by law. The notification must be tendered in duplicate, specifying therein the limits of the zone to be explored.

The agent shall return the exploring party a copy of the said notification, specifying thereon the date and hour it was presented and warning the same that in the event of any digging being affected, this should be done strictly in conformity with Art. 13 of the Law and 14 of these Regulations.

Art. 11. If the explorations are to be made on private property the exploring party should first obtain due permission from the owner of the property or his attorney, who, if authorising it, will give the explorers a written statement specifying thereon the limits of the ground to be explored. This statement must be presented to the respective agent, who, after making the proper entry in the record, shall return it to the exploring party, expressing the date and hour when presented.

Art. 12. If the owner of the property, or his representative, should fail to grant the permission called for, the exploring party should apply to the agent for same stating at the same time his security therefor. This petition shall be presented by the agent to the owner of the property, who, failing to protest within a fortnight, shall be understood to grant his consent. At the expiration of the aforesaid fifteen days, the agent shall adopt the proper proceedings, fixing at the same time the amount of security which must be produced by the exploring party and a term of 30 days for presenting the same. The security once produced the agent shall give explorer a written acknowledgment, expressing thereon the limits of the section to be explored.

Art. 13. During a term of three months, not to be prorogued, from the date of the notification, permission or Administrative proceedings referred to in Arts. 10, 11, and 12 of these Regulations, the agent shall admit of no other petition for the site of explorations, or the limits thereof, than those proceeding from the exploring party.

Art. 14. The exploring party or parties shall not carry on the work of exploration at any distance from towns or inhabited places nearer than 50 metres from the exterior boundaries of public and private buildings and outhouses belonging thereto. The same distance shall be observed with regard to any public edifice or construction of any kind, but this shall be reduced to 30 metres from the lines bordering on highways, railroads, and canals. With regard to fortified places, no work of exploration shall be carried on within one kilometer reckoned from the outer lines of same.

CHAPTER III.

On Concessions.

Art. 15. The petitions for concession of claims or extensions must be presented in duplicate to the respective agents. These petitions shall clearly express the number of claims wanted, their situation on the ground, and the relative position of said ground with regard to the corresponding municipality, fixing the most notable points of the locality for identification, and specifying at the same time the mineral substance to be developed. Should the agent judge the petition as lacking clearness and accuracy on any point, he shall have the right to question the petitioner in order to obtain the same. All such information being affixed to the duplicate petition and the Record of the Agency in the presence of said petitioner. Ignorance or inability on the part of the petitioner to afford the desired information shall be no obstacle in the way of registering the petition, or sufficient cause for suspending the proceedings.

Art. 16. The agent shall admit no other petition for the same site until the Department of Public Works has given its final decision on the provision for each petition.

Art. 17. On presentation of a petition to the agent, this functionary shall proceed to register the same in the presence of the petitioner, stating on the margin of both petition and duplicate thereof, as well as in the official register duly authorised by the Department, the date, hour, and numerical order of presentation, the duplicate being then returned to the petitioner. The petitions must be registered strictly in the order of dates and hour of day presented, leaving no space in black between the inscriptions.

Art. 18. In the event of two or more petitions for claims or extensions on the same site being presented at the same time the decision shall be cast by lots.

Art. 19. Within three days following the presentation of a petition for concession of mining claims, the agent shall appoint a titled expert, or, if such is not to be found, a practical surveyor to take the measurements and draw the plans of the claims and extensions solicited, expressing clearly thereon the monuments marking said claims, as well as those of all other claims within an area 100 metres all round. The agent may appoint the surveyor suggested by the petitioner, provided said surveyor meet all the requirements prescribed by law.

Art. 20. Within the next eight days following the appointment referred to in the foregoing article, the surveyor must communicate with the respective agent, stating whether he accepts the appointment or otherwise. If in the first case, he should also state that arrangements had been concluded between himself and the petitioner as to the amount of fees to be collected. The agent shall thereupon make the proper entry in the respective provisions.

At the request of the petitioner the agent may extend, on one single occasion, the aforesaid period of eight days to another eight.

Art. 21. On making the entry referred to in the foregoing article, the agent shall fix a period not exceeding 60 days for the presentation of drawings referred to in Art. 19, accompanied by an explanatory report by the surveyor; the agent shall then proceed to draw up an extract in duplicate containing the following data:—

I. The petition, specifying in a clear and precise manner the name and dwelling of the petitioner, and the numerical order of the corresponding title.

II. The name, residence, and acceptance of the surveyor appointed.

III. Due notice that, within a period not to exceed four months from the date of said extract, the corresponding title shall be finally substantiated at the respective agencies.

A copy of the Note shall be published in the bulletins fixed on the exterior of each agency, the petitioner furnishing the
(1398)

revenue stamps necessary for said publication. The notice shall remain on the bulletin boards for a period of one month, due entry thereof being made in the corresponding title.

Another copy of the notice shall be handed the petitioner, who, at his own expense and risk, and within 40 days after the date of said notice, shall have the same published three consecutive days in the official paper of the respective State, Territory, or Federal District, copies of which issues must be delivered at the agency by the petitioner, in order to have the same attached to the corresponding title.

Art. 22. The publication of the notice, as stated in the previous article, shall serve as summons to all such as may deem themselves justified in protesting against the concession of the petition in question.

Art. 23. On making the entry referred to in Art. 20, the agent shall hand the expert a certified copy of his appointment, which must close with warning that whosoever may resist or oppose the execution of any work undertaken by the expert, shall make himself liable to the penalties established in Art. 904 of the Penal Code of the Federal District, or the law of respective State.

Art. 24. Should the experts meet any opposition or positive resistance in the execution of the previous article, they may call the local authorities to their assistance.

Art. 25. The experts shall pay due attention to all remarks offered by the petitioner as well as by those who have opposed or may oppose the petition; but they shall reserve their views on the subject for the written report referred to in Art. 21, the presentation of which, within the period therein stipulated, shall be for the sole account and responsibility of said surveyor, as well as all damages that may spring from the non-delivery of said reports and maps.

Art. 26. Opposition to the concession of a petition for any of the following reasons shall only be admitted during the four months stipulated in Clause III. of Art. 21, viz.:—

I. By the dissent of the property owner.

II. By the invasion or trespass on adjacent claims or extensions.

III. By prior rights or petition of the claims or extensions solicited.

Art. 27. On receipt of a protest to any petition, the agent shall notify the petitioner by means of a written notice placed on the bulletin boards during three consecutive days, expressing thereon the names of the claimant and opponent respectively, as well as the numerical order of the corresponding title wherein due entry shall be made of said publication.

Art. 28. Save in the event of the petitioner notifying the agent that he desists from his claim, the latter shall have the opponent's protest preserved on file until the surveyor's report and plans are presented.

Art. 29. On presentation of these documents the agent

shall proceed to call a meeting of the parties, to take place within the next fifteen days, publishing said summons on the agency bulletins during three consecutive days, and expressing the number of the provision, names of the parties, and date and time of day appointed for the meeting. At this meeting it shall be the agent's mission to bring about a compromise between the dissenting parties, in order to avoid legal complications. Of all these particulars due entry shall be made in the respective provision.

Art. 30. If the opposition should spring from the land-owner, and the expert's report should point out to indications of mineral deposits on the surface, or any explorations in said deposits, the agent shall carry the administrative proceedings on the provision to a conclusion, so that the Department may issue the proper title in favour of the petitioner, since this, according to Arts. 7 and 11 of the law, is either simply accountable for the under ground operated upon, or otherwise leaves to the jurisdiction of the courts the extension and appraisements of the surface occupied by the miner. At the conclusion of these proceedings, which shall be duly placed on record, the agent shall notify the parties that they are at liberty to have recourse to the usual tribunals, according to Art. 20 of the law.

Art. 31. In any other of the opposition cases enumerated in Art. 26, should the agent be unsuccessful in bringing the parties to a compromise, he shall at once suspend all further proceedings and deliver the respective provision to the petitioner, who, on his own responsibility, and within a reasonable term appointed by the agency, must present it before the corresponding local Judge of First Instance.

Art. 32. If any reasonable opposition, based on causes not provided for in Art. 26 should be produced, the agent shall simply affix the same to the corresponding provision, without suspending the proceedings on this account.

Art. 33. In the event of any opposition being made after the delivery of the surveyor's maps and report, but before the expiration of the four months stipulated in Clause 3 of Art. 21, the proceedings referred to in Arts. 29 to 32 shall be continued without interruption. This being the only instance (aside from the remission to the tribunals) where the agent may delay the substantiation of the provisions for 35 days after the said four months, provided the opposition be made within 20 days of the expiration of the above-mentioned four months.

Art. 34. If the four months referred to in Art. 26 should have transpired without any opposition being made, or in the event referred to in Arts. 30 and 32; or should the provision returned by the tribunals with a judgment in favour of the petitioner, the agent is strictly enjoined to forward to the Department of Public Works, within the next 15 days following, and under registered cover, copies of the provision and maps; unless the petitioner should undertake to be the bearer

of those documents, in which case the agency shall give due notice thereof to the Department.

Art. 35. The petitioner shall furnish the agency with the amount of revenue stamps required for issuing the title. These stamps shall accompany the copies of provision and maps forwarded the Department under registered cover, and will be returned, through the agent, to the petitioner, if the Department should disapprove the provision and consequently refuse the title. If the petitioner should so desire it, he may appoint the party, who must deliver the stamps at the Department.

Art. 36. Any omission or neglect in presenting the petitions, furnishing the stamps, or printed notices, payment of fees, or non-appearance at the meetings, and in general of any requirement mentioned in this chapter, imputable to the claimant or the opponent respectively, shall imply, on the part of the former, the relinquishing of all claims and his petition, and on the latter that he desists from his opposition, and consequently, acknowledges the legality of the petitioner's claims.

Art. 37. After due consideration and approval of the provision by the Department, the proper title shall be issued and forwarded to the agent, who must deliver the same to the petitioner with a copy of the maps duly stamped by the Department of Public Works; this Department furnishing that of finance, with a detailed report on the concession granted.

Should the provision meet the disapproval of the Department, the agent shall be notified thereof, in order that any errors or deficiencies may be rectified within the term appointed by the Department, provided said errors or deficiencies are not chargeable to the petitioner or the agent himself, in which case a different course shall be adopted, in accordance with Art. 19 of the law.

CHAPTER IV.

General Laws.

Art. 38. The work to be performed on the ground by the expert, according to Art. 19, must conform with the scientific proceedings, in order to obtain the horizontal longitudes on the sides of the claims and the angles made by same with the true meridian. To this end the expert must determine the magnetic deviation of the compass, if this instrument is used to measure the direction sides. The expert shall mark some of the vortices in the perimeter by means of permanent monuments on the ground, gathering all the necessary information besides, in order to verify said measurements when desired.

The expert shall designate upon the ground the spots where the monuments ought to be constructed, as set forth in Art. 41.

Art. 39. The maps of the respective claims must be neatly

and accurately drawn on strong paper for the better preservation of said documents. The copies thereof may be produced on tracing cloth. The maps must be made in proportion to the object of the maps in decimals, also the length of the sides in metres, the direction of the same with regard to the true meridian, and the deviation of the compass at the time of taking the observations, and lastly the area of the surface in hectares.

Art. 40. The selection and survey of the claims upon the ground confers no rights to the occupation of same, but shall serve simply to show the limits embraced in the mining concession thus obtained. For the final acquisition of the surface required by the petitioner for the development of his mining concession, or that covering the total area of his claims, he must either arrange with the owner of the property by means of purchase, or otherwise present an action before the corresponding tribunal for the expropriation of the said ground, as prescribed by Art. 11 of the law.

Art. 41. The monuments to be fixed on the ground must meet the following requirements:—

I. Their position must be permanent, as they are intended to mark spots not to be changed as long as the concession for the claims undergo no modification. Their construction must be solid, and they shall be kept in good repair.

II. A sufficient number of them shall be erected in the most convenient places, so that from any one monument the preceding, as well as the following one, may easily be seen. Care should be taken to distinguish the same in shape, colour, or any other characteristic mark from those of adjacent claims.

Art. 42. The concessionaires of mining claims shall not overstep the limits marked in their respective concessions (as prescribed by Art. 8 of the law), except in the event of waste lands existing near their property, due petition for the extension thereof being previously presented to the respective agent, who shall proceed in this case exactly in the same manner as prescribed in these regulations for the concession of mining claims. The like process shall be adopted in the substantiation of petitions for the ratification of claims.

Art. 43. The possession of a legal concession is indispensable for the operation or development of all mineral substances enumerated in Art. 3 of the law. Therefore no manner of work tending to the development of mines or deposits of said substances, whether on the surface or under ground, shall be allowed without the same being protected by means of a legal title thereto duly registered.

Art. 44. All petitions of concession for the development of any substance not enumerated in Art. 3 of the law, shall be rejected, the development of the said substance, according to Art. 4 of the same law being the exclusive right of the land holder.

Art. 45. In compliance with Clause 4 of Art. 12 of the law, a petition for the corresponding license, accompanied by a horizontal projection and profile of the adit, reduced to a proportional decimal scale, and all other particulars that may be deemed pertinent thereto, shall be presented to the respective agent. The said agent shall forward to the Department the corresponding petition and maps, together with his report on the subject.

The Department, on receipt of these documents, and all further information that may be deemed necessary, shall proceed to render its decision.

Art. 46. The owner of mining claims who should be refused the consent of the party that ought to render the legal service, shall present to the Department (in compliance with Clause 19 of Art. 12 of the law) the corresponding protest in the form of a petition embracing all the necessary information on the subject.

The Department, in conformity with the agent's report thereon and previous hearing granted, the dissenting party, or his attorney, shall render its decision within the period previously established for that purpose.

Art. 47. If the petitioner, or the party who ought to render the service referred to in Clause 19 of Art. 12 of the law, should deem the Department's judgment unfavourable to his legal rights and interests, he shall be at liberty to appeal from this decision to that of the respective Judge, provided said appeal be made within two months from the date of the administrative decision.

Art. 48. In places within the Republic, not embraced in the jurisdiction of a mining agent, the petition for concessions, as well as the notices and concessions themselves, shall be presented to the postmaster of the locality, who shall file said documents, expressing thereon the date and time of day presented, and shall notify the Department of Public Works, through the mail and by wire, where such means are obtainable.

Art. 49. The postmaster shall receive and file the petitions for concessions, or the concessions themselves, only in such cases where his residence lies beyond the jurisdiction of any mining agent.

Art. 50. The Department of Public Works shall publish in the *Diario Oficial*, the Federal official paper, every six months, the number of titles issued during that period.

Art. 51. The special book referred to in Art. 25 of the law, shall be kept by such parties as are designated in Art. 18 of the Commercial Code, in the manner prescribed for in the said code, Chap. I, tit. ii., bk. 1.

Art. 52. It is the right of every individual to inscribe his titles for future concessions or actual property in the Commercial Registers, as sanctioned by Art. 36 of the Commercial Code in such cases where the proper register is not kept.

Art. 53. It is compulsory for all mining corporations, as well as for the creditors thereof, to register all their transactions, as stipulated in Arts. 25 of the law and 5 of the bye-laws.

Art. 54. All mining corporations are obliged to register the location of their mining claims as well as the residence or residences of the company at the Department or Judicial District.

Art. 55. If through the extension of claims or other causes any doubts should arise regarding the place where the registering should be affected, in accordance with the previous article, the Department of Public Works shall render its decision thereon, communicating the same to that of finance.

CHAPTER V.

Bye-Laws.

Art. 1. The agents shall receive in the strictest numerical order, as per inventory thereof, all the provisions found in the present mining deputations or offices in place of same, on taking possession of them and all provisions pending resolution shall be given due course, as prescribed in Art. 1, tit. v., of the law.

Art. 2. All claims in the course of publication shall be placed on the bulletin boards after the agent has duly complied with the prescription expressed in Art. 21; the said notice being again published in the official paper referred to in the last-mentioned article.

Art. 3. When the provisions of denouncement have been duly advertised, though the appointment of the expert should be still pending, the agent shall proceed exactly as in the case of a new petition for concession, without making a new entry in the register.

Art. 4. With regard to provisions where the surveyor has been appointed but has not, as yet, presented the maps and report; the agent shall proceed in like manner as in the case of new petitions without making a new entry in the register.

Art. 5. With regard to provisions where the maps and report have been duly presented, the agent shall proceed to draw a note in duplicate containing the following:—

I. Copy of the petition, clearly expressing thereon name and residence of the petitioner and numerical order of the corresponding document.

II. The expert's report.

III. Notice that a term not to exceed two months from the date of said note, will be allowed for the substantiation of the corresponding provision at the agency.

Art. 6. In the event of provisions on denouncement where any opposition should have occurred before delivery of the

maps and report, the agent shall proceed in accordance with Art. 27, and, if required, as prescribed in Arts. 28 to 32.

Art. 7. With regard to provisions where any opposition may have been produced, the expert's maps and report being delivered, or where the opposition takes place with the two months stipulated in Art. 5 of these bye-laws, the proceedings shall be analogous to those in Arts. 28 to 32, the agencies having the right to the 35 days extension granted in Art. 33.

Art. 8. The same proceedings (as in Arts. 27 to 32) shall be adopted with regard to provisions undergoing the 20 days' probation, expressed in Art. 78 of the Mining Code, of November 22, 1884. The agents in their administrative capacity cannot render their decision in the same manner and spirit as the corresponding tribunal.

Art. 9. At the expiration of the two months referred to in Art. 5 of these bye-laws, or in any event provided for in Art. 34, the agents shall proceed in conformity with the prescriptions of the said article.

Art. 10. For this one occasion the three days stipulated in Art. 19 shall begin to count from the date that the agent shall announce that the office and business pertaining thereto are open to the public.

Therefore let this be printed, published and circulated for the fulfilment thereof.

Given at the Palace of the Executive Power of the Union. Mexico, June 25, 1892.—PORFIRIO DIAZ.—To Mr. Manuel Fernandez Leal, Secretary of State and of the Department of Public Works, Colonization and Industry.

And I communicate the same to you for your knowledge and subsequent results.

Liberty and Constitution. Mexico, June 25, 1892.—
M. FERNÁNDEZ LEAL.

TARIFF.

For the Payment of Fees to the Mining Agents.

I. For the inscriptions in the notice or in the concession of explorations referred to in Arts. 10 and 11 of the "Regulations or Legal Proceedings regarding Mining" and the corresponding entry in the records, one dollar.

II. For the proceedings on each concession of exploration referred to in Art. 12 of the said Regulations, and entry thereof, two dollars.

III. For registering each petition of mining concession, or extension thereof, or rectification of same, and entry in the records, one dollar.

IV. For the publications, memorials and notes on provisions, at the rate of twenty cents for each ten lines or fraction thereof, besides ten cents for the title page covering the documents to be copied.

V. For the transcription, checking and legalisation of testimonies, certificates, and other copies, at the rate of one dollar for each 100 lines or fraction thereof. For the search of a provision or any other document from the archives, one dollar. When the solicitor cannot furnish sufficient data on the subject and documents of over a year's date must be searched, one dollar for every year thus revised.

VII. For every kilometer traversed in any direction, for the prosecution of any transaction in connection with his office, twenty-five cents.

VIII. For examinations of any kind, whether on the interior or exterior, five dollars.

IX. For inspections, visits, or examinations of underground works, five dollars for every 100 metres in depth, or fraction thereof, and five dollars for the corresponding report.

X. For his appearance at meetings not exceeding an hour in duration, three dollars, and one dollar more for every hour extra, or fraction thereof.

Liberty and Constitution. Mexico, June 25, 1892.—
FERNÁNDEZ LEAL.

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No. 284.

Reference to previous Report, Miscellaneous Series No. 252.

MEXICO.

MEXICO.

Sir Spenser St. John to the Earl of Rosebery.

My Lord,

Mexico, March 20, 1893.

I HAVE the honour to enclose copies of three circulars issued by the Minister of Finance to the various officials of his Department; the first embodying the Supplementary Mining Law of October 31, 1892, which formed the subject of Mr. Bland's despatch of November 7 last; the second containing instructions for their guidance in the execution of the said Law; and the third communicating a further Presidential Decree, dated December 31, 1892.

Translations of these documents are enclosed herewith.

I have, &c.

(Signed) SPENSER ST. JOHN.

New Mining Law of Mexico.

Translation.—*Ministry of the Treasury and Public Credit.*

The President of the Republic has been pleased to forward me the following decree:—

*Eighth
section.*

Porfirio Diaz, Constitutional President of the United States of Mexico, to its inhabitants, makes known:

That the Congress of the Union has seen fit to decree the following:—

(1512)

The Congress of the United States of Mexico decrees:—

Art. 1. The time which is fixed by Art. 2 of the Law of June 6 last, within which the actual owners of mines should present their title deeds to the respective Treasury offices, in order that they may be entered in the register of mining properties, and have the stamps required by the said Law affixed, is extended until June 30, 1893.

Art. 2. In the absence of original titles, the presentation of the last transfer of the property will be sufficient; but if even this cannot be done, then the interested parties, in order to enjoy the benefit of the extension of time, must present a declaration in duplicate before December 31 next, in which they shall set down on affidavit the number of hectares comprised in the claims of the enterprise, and shall affix to one of the declarations the necessary stamps at the rate of 10 dol. per hectare. They shall also make the payment of the two first thirds of the annual tax, in the form ordered by the regulations of the Treasury Department.

Art. 3. The copy of the declaration to which the stamps have been affixed shall be returned to the interested parties when, after having deposited their titles within the time allowed them by this Law, and in the form ordered by the regulations, they shall have recovered them, duly registered, from the respective Treasury office. If it is a question of titles granted by the Department of Fomento, the stamps which they must have affixed shall be furnished by the Treasury Department without charge, to an amount equal to that of the declaration mentioned in Art. 2.

Art. 4. An extension shall likewise be made, but only in favour of the owners of mines who have complied with the requirements laid down in the previous articles, of the terms fixed for the imposition of fines, in the two first paragraphs of Art. 6 of the Law of June 6 last, which terms shall commence to be reckoned from July 1, 1893.

Art. 5. The rates fixed by Art. 3 and Art. 4 of the Law of June 6 of this year for the mines or beds of iron and quicksilver are modified, the value of the stamp which must be affixed to the titles of ownership, according to the number of hectares, being reduced to 1 dol., and the amount of the annual tax to 1 dol. 50 c. for each claim or hectare.

Art. 6. The executive is authorised to make in the laws of June 4 and June 6 last, the modifications it may deem necessary for the improvement and development of the mining industry.

(Signed) JUSTINO FERNANDEZ,
President of Chamber of Deputies.

(Signed) R. DONDE,
President of Chamber of Senators.

(Signed) ROSENDO PINEDA,
Secretary of Chamber of Deputies.

(Signed) CARLOS QUAGLIA,
Secretary of Chamber of Senators.

I therefore order it to be printed, published, and circulated for its due execution.

Given in the Palace of the Executive Power of the Union in Mexico on October 31, 1892.

(Signed) PORFIRIO DIAZ.

To the Minister of the Treasury and Public Debt, Don Matias Romero.

I forward the same to you to be carried out.

(Signed) ROMERO.

Mexico, October 31, 1892.

Translation.—*Ministry of the Treasury and Public Credit.*

While forwarding to you copies of the Decree issued by the Congress of the Union, under date of October 31 last, extending the time allowed by the Law of June 6, 1892, for the presentation for the purpose of registration of mining titles, and altering the taxes imposed on iron and quicksilver mines, I beg to communicate to you, with the sanction of the President of the Republic, for their due execution the following regulations:—

Eighth
section, second
table. Circular
No. 20.

1. When making use of the privilege granted by Art. 2, only the declarations are presented, the Treasury offices shall be careful to cancel the corresponding stamps on the principal copy, making the necessary entry and memorandum, and shall forward the duplicate to this department, together with the report ordered by the Regulations of June 30 last. The stamped copy shall remain in the possession of the said Treasury offices, in order that on the original titles being presented the declarations may be compared and corrected, and the Treasury Department advised should any discrepancy appear.

2. On endorsing on the titles the fact that they have been registered, it shall be stated that the necessary stamps have been cancelled on the copy of the declarations which shall be attached to the said titles.

3. On receiving the statements mentioned in Art. 2 and Art. 3 of the Law of October 31 last, the Treasury offices shall require the payment in cash of the two first thirds of the annual tax, furnishing the payer with a certificate of receipt which will enable him to apply from the respective stamp office for the delivery in exchange of the ticket mentioned in Art. 22 of the Regulations of June 30, with the stamps cancelled representing the two-thirds paid.

4. In cases of the reduction or rectifications of claims described in former titles, the payment of the tax to the Department

of Mines shall be calculated on the measurements shown in the original titles up to the date of their modification, and after that on the measurements which shall have been fixed, on the understanding that the payment of the tax is binding on all mining enterprises from July 1 of this year.

(Signed) ROMERO.

Mexico, November 1, 1892.

Translation.—*Ministry of the Treasury and Public Credit.*

Eighth
section, second
table. The President of the Republic has been pleased to forward me the following Decree:—

Porfirio Diaz, Constitutional President of the United States of Mexico, to its inhabitants, makes known:

That in virtue of the authorisation granted to the Federal Executive by Art. 6 of the Law decreed by the Congress of the Union on October 31 last, to make in the Laws of June 4 and June 6 last, the modifications it may deem necessary for the improvement and development of the mining industry, I have seen fit to decree:

Art. 1. The terms fixed in Art. 4 and Art. 5 of the Law of June 6, 1892, for the payment of the annual tax on mines, shall be reckoned from November 1 of the present year and not from July 1 last, the date fixed in those articles.

Art. 2. The owners of mines who may have paid the third from July 1 to October 31, 1892, shall be repaid the amount of the same in stamps of the mining tax, which shall be furnished them by the stamp office in which they made the payment, affixing and cancelling them on the proper ticket as payment of the third from November, 1892, to February, 1893, inclusive. To those who may have paid this third, the said return shall be made for that from March to June, 1893.

Art. 3. The lessees of mines who may have applied for and obtained since July 1, 1892, the reduction of the number of their claims have in virtue of the cancelling of the first third of the present fiscal year which is made to them by this decree, the right to be repaid, in the manner provided by the preceding article, the excess they may have paid for the tax on title deeds and the annual tax on mines.

Art. 4. The lessees of mining zones who, renouncing the privileges granted them by their contracts, may have opted for the new mining law, must present their title deeds and the fresh declarations in accordance with Art. 3 of the Regulation of June 30 last, within the term of 2 months counted from the date of the present Decree, the annual payment to be reckoned from November 1, 1892, or from the day on which the Department of Fomento

may approve the option if it should be subsequent to the above-mentioned date.

I therefore order this Decree to be printed, published, and circulated for its due execution.

Given in the Palace of the Federal Executive Power in Mexico on December 31, 1892.

(Signed) ` PORFIRIO DIAZ.

To the Minister of the Treasury and Public Credit, Licenciado Matias Romero, present.

I forward the same to you for its due execution.

(Signed) ROMERO.

Mexico, December 31, 1892.

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1893.

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MEXICO.

*Presented to both Houses of Parliament by Command of Her Majesty,
SEPTEMBER, 1893.*

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No. 302.

MEXICO.

MEXICO.

Mr. Carden to the Earl of Rosebery.

My Lord,

Mexico, August 4, 1893.

In view of the recent sudden fall in the price of silver I have the honour to transmit herewith, for your Lordship's information, a Report showing the probable effect which a permanent depreciation of its value would have on this country.

I have, &c.

(Signed) LIONEL CARDEN.

Report on the Effects of the Depreciation of Silver on Mexico.

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(1631)

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MEXICO.

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Weight and fineness of the Mexican dollar.

The silver dollar is the basis of the monetary system of Mexico, and is the legal tender for all payments of whatsoever nature.

As far more dollars are coined than are required for the purposes of currency, the surplus is exported and constitutes the most important item of the export trade of the country.

The fineness of the dollar is 902·7 thousandths, and the weight of a thousand dollars is fixed by law at 27·073281 kilos, or 870 ounces and 194 grains troy. The dollars are tested in batches (or “levadas”) of 1,000 each before leaving the Mint, and a variation of 750 grains troy, either way, is admitted in each batch. The maximum variation allowed in a single dollar is one and a half grains.

In practice, the weight of a dollar may be set down at 417·79 grains troy, and that of its fine silver contents at 377·139 grains.

There is a certain demand for Mexican dollars as coins, for use in China and the Straits Settlements, but their selling value abroad is principally determined by the market price of bar silver of standard fineness (*i.e.*, 925 thousandths). Their value is always quoted by weight in troy ounces.

Selling value of the Mexican dollar, how determined.

The ounce of standard silver contains 444 grains of fine silver, while the ounce of Mexican dollars contains only 433 296 grains, so that the latter has a less actual silver value than the former by 2·41 per cent., to which difference must be added a small charge for melting down the dollars. A certain proportion, however, of the dollars, as I have already mentioned, fetch a higher price as coins than their silver contents would produce, occasionally reaching an equal price with bar silver (at the present moment, July 1893, they are worth 1*d.* more), which tends to modify to some extent the percentage above mentioned. By comparing the mean quotations of bar silver and dollars for the past ten years, we find that the actual difference has been 2·10 per cent. or a trifle under 1*d.* per ounce at the rates current during that period.

Exchange on London, when not influenced by special causes, as for instance unusually heavy shipments of coffee or other agricultural produce, is calculated on the actual remission and sale of dollars. To determine the rate, therefore, it is only necessary to find the price of Mexican dollars per ounce and to multiply it by '87, which is the proportional weight which a dollar bears to an ounce, deducting about 12 dol. 50 c. per thousand for freight and other expenses attending the remittance. As some of these expenses are in sterling while others are in silver, the equivalent, in whichever money we take it, varies slightly with the rate of exchange, so that it is not possible to fix an absolutely unvarying proportionate cost for expenses. It is enough, however, for all practical purposes, to say that under ordinary circumstances the rate of exchange per dollar for bankers' drafts at sight averages about 6*d.* less than the London market price of Mexican dollars per ounce.

Exchange calculated on selling value of dollars.

From time immemorial it has been the custom in Mexico to reckon the value of a dollar at 4*s.*, and any diminution of that value as a loss, a system which doubtless has its conveniences for ordinary mercantile calculations. So long a time, however, has passed since exchange was really at its so-called par value, that in order to form a correct idea of the effects on the country of the recent fall of silver it is necessary for the purposes of comparison to adopt another standard more approximate to the one which has formed the basis for actual transactions of late years.

Value of silver dollar estimated at 4*s.* in commercial calculations.

A reference to Table II in the appendix will show that in the seven calendar years from 1866 (when payment of interest on the foreign debt was resumed and European capital began to be attracted to Mexico) to the end of 1892, the mean value of the (1631)

Average value has been 3*s.* 1*d.* in the past 7 years.

dollar for the purposes of exchange was about 3s. 1d., equivalent very nearly to a premium of 30 per cent. on gold.

Rates of
exchange at
which the
different
Mexican loans
have been
issued.

As all the Mexican bonds now on the market were issued between 1886 and 1892, and as a large proportion of the foreign capital invested in different enterprises in Mexico was introduced within the same period, I think that the average rate of exchange then ruling (3s. 1d. to the dollar) constitutes a sound standpoint from which to estimate the effects of the subsequent depreciation, and I have therefore adopted it as the basis for all the calculations contained in this report. Before concluding this subject I append a table showing the amount of the various federal and municipal loans issued abroad, with the dates of their issue and the approximate rates of exchange on those dates. In the 1890 loan the Government were certainly unfortunate, as silver was then at the highest point it had reached for many years, and dropped again immediately afterwards, but all of the other issues were made when exchange was at 3s. 1d. or under.

MEXICAN Federal and Municipal Loans.

Amount.	Approximate Date of Issue.	Approximate Rate of Exchange about this Date.
		<i>d.</i>
10,500,000 <i>l.</i> , 6 per cent.	March, 1888 ..	86½
2,400,000 <i>l.</i> , 5 per cent. (Municipal) ..	February, 1889 ..	35½
2,700,000 <i>l.</i> , 5 per cent. (Tehuantepec) ..	December, 1889 ..	37½
6,000,000 <i>l.</i> , 6 per cent.	September, 1890 ..	42

The effects of the fall in silver are felt by all classes of the community, but in different ways and different degrees, so I will proceed to discuss them separately—

1. *The Government.*

Effects of
depreciation
of silver on the
Government.

As the Federal Budget is framed entirely on a silver basis, a fall in the price of silver does not affect it directly, except in the case of those payments which have to be made abroad, though indirectly it has an influence on the customs revenue owing to the reduction of the purchasing power of the silver dollar.

The service
of the debt.

A. The foreign debt of the Federal Government amounts to 19,200,000*l.*, calling for a yearly payment of 1,192,500*l.*, as follows :—

Description.	Amount.	
	£	£
6 per cent. Loan of 1888	10,500,000	
Interest at 6 per cent.	..	630,000
Sinking fund at $\frac{1}{4}$ per cent. ..	..	52,500
Tehuantepec Railway Debt	2,700,000	
Interest at 5 per cent.	..	135,000
6 per cent. Loan of 1890	6,000,000	
Interest at 6 per cent.	..	360,000
Sinking fund at $\frac{1}{4}$ per cent. ..	..	15,000
Total	19,200,000	1,192,500

At the exchange of 37 pence, which I have adopted as a standard, the silver equivalent of this would be 7·735125 dol., and any drop below it represents what may be considered as a loss to the Government under this head.

The following table shows the amount of this loss calculated at different rates of exchange:—

Exchange in Pence to Dollar.	Approximate Equivalent Premium on Gold.	Loss to the Government.
d.	Per cent.	Dollars.
36	33·33	214,865
34	41·18	682,512
32	50·00	1,208,615
31	54·84	1,497,123
30	60·00	1,804,865
29	65·58	2,133,830
28	71·43	2,486,294
26	84·61	3,272,557
24	100·00	4,189,865

B. The cost of the salaries of the Diplomatic and Consular Corps, which are paid in gold, amounts to 350,000 dol. gold a year, while the other gold payments which the Government has to make for purchase of foreign goods and other miscellaneous expenses are estimated at about an equal figure. At the rate of 3s. 1d., these two items together would represent a payment of 908,108 dol. in Mexican silver, and the loss which a fall in silver below this rate would entail on the Government would be as follows:—

Exchange at	..	..	<i>d.</i>	Per dollar	..	..	Amount.
							Dollars.
			36				25,224
			34				80,127
			32				141,892
			31				175,763
			30				211,892
			29				250,512
			28				291,892
			26				384,200
			24				491,892

Customs
revenue
represents
60 per cent. of
total revenue.

C. The customs duties on imports represent 60 per cent. of the total revenue of the country, and a certain proportion of them have been specially assigned for the service of the foreign debt. The question as to how far the fall in silver will affect this branch of the receipts cannot fail, therefore, to be one of the deepest interest both to the Government and to the holders of Mexican securities.

Amount of im-
portation not
governed
entirely by
rate of
exchange.

At first sight it might appear that the amount of the foreign goods imported, and consequently of the duties collected, depended directly on the value of the silver dollar, but a reference to the following table proves that this is not the case, as in the year 1889-90, when the customs revenue reached the highest figure it had ever attained, exchange was at $37\frac{1}{4}$ pence, whereas, in the following year when it was over 40 pence, the duties decreased by more than 1,500,000 dol.

Fiscal Year.				Import Duties.	Average Exchanges.
				Dollars.	<i>d.</i>
1888-89	..	..	..	18,922,772	$35\frac{3}{4}$
1889-90	..	..	..	21,725,839	$37\frac{1}{4}$
1890-91	..	..	..	20,178,744	$40\frac{1}{2}$
1891-92	..	..	..	20,031,365	$35\frac{1}{2}$
1892-93	..	..	..	18,000,000*	$32\frac{1}{8}$

* Approximate.

The explanation is obvious, though it is frequently lost sight of in the present general tendency to attribute every evil to the depreciation of silver.

The amount of foreign goods imported depends not only on the purchasing value of the silver dollar abroad, but also, and perhaps chiefly, on the number of dollars available for the purchase of such goods, which, in its turn, depends on the general prosperity of the country; so that a low rate of exchange, if coincident with a prosperous year, does not necessarily involve a falling off in the imports. In order then to be able to form some idea of the future prospects of the customs revenue, it is necessary to

establish a basis on which to estimate; firstly, the number of silver dollars available each year for the purchase of foreign merchandise, and the amount of goods which could be imported for that number of dollars at a given rate of exchange; and, secondly, the amount of duties which such an importation would yield. Unfortunately, the official returns of the imports are published in so desultory a manner, and their mode of compilation is so defective, that they are of little use in the solution of this problem, and I have been obliged to rely in great measure for the following calculations on the statistics of exports from other countries to Mexico, and on unofficial data. The results obtained, therefore, have no pretence to be more than approximations.

In the fiscal year 1889-90 the importation into Mexico amounted to about 40,000,000 dol. gold, which may be divided roughly between the following countries:—the United States with 21,000,000 dol.; England with 8,500,000 dol.; and France, Germany, Spain, and other countries with 10,500,000 dol.

Importation
and customs
revenue for
1889-90.

The exchange that year averaged 30 per cent. premium on gold, representing 12,000,000 dol. which must be added to the prime gold cost.

The import duties received by the Government for the same year were 21,725,839 dol. in silver, to which must be added, in estimating the cost of the goods to the merchant, 9 per cent. (or 1,955,325 dol.), consisting of the 2 per cent. municipal dues at the ports of entry, 2 per cent. for port improvements, and 5 per cent. for duties on consumption.

The freight and expenses, until arrival in the merchant's warehouse at the distributing centre, may be roughly estimated, taking one class of goods with another, at about 20 per cent. of their prime cost in silver.

Finally, in fixing the selling price of the goods, the merchant usually adds 15 per cent. to their actual cost placed in his warehouse, to cover his own personal expenses, profit, and interest on his outlay.

The result in tabulated form is as follows:—

Description.	Amount.		Per Cent.
	Dollars.	Dollars.	
Prime cost of merchandise, in gold dollars	..	40,000,000	40·41
Premium on gold, at 30 per cent.	..	12,000,000	12·12
Prime cost, in silver dollars ..	..	52,000,000	
Freight and expenses to merchants' warehouse, 20 per cent.	..	10,400,000	10·51
Customs duties —			
By tariff	21,725,839	..	
9 per cent. additional	1,955,325	..	
		23,681,164	23·92
		86,081,164	
Merchants' expenses, profit, &c., 15 per cent.	..	12,912,175	13·04
Total	..	98,993,339	100·00

Cost of
imports in
Mexican
dollars.

We find then that the importation of 40,000,000 dol. (gold value) of foreign goods, at the rate of exchange of 30 per cent. premium on gold, requires a purchasing capacity at first hand of 99,000,000 of Mexican dollars, and produces to the Government 21,725,839 dol. of duties, without reckoning the additional duties which for the most part are assigned to special purposes. By adapting this calculation to different rates of exchange (vide Table III in Appendix), the effect of the fluctuation of silver on the customs revenue can be determined with a certain degree of accuracy.

Assuming that the purchasing power of the country and the relation of the tariff duties to the imports remain unchanged, the customs revenue will be affected by an increase in the premium on gold over 30 per cent., as follows:—

Premium on Gold.	Amount of Customs Revenue.	Absolute Loss to the Government.	Percentage of Loss to the Government.
Per cent.	Dollars.	Dollars.	Per cent.
30	21,725,839	..	..
40	20,578,361	1,147,478	5·28
50	19,546,027	2,179,812	10·03
60	18,612,303	3,113,536	14·33
70	17,763,727	3,962,112	18·24

Relation
between
duties and
value of
imports.

The relation between the duties and the imports varies from time to time, according to the proportion of goods introduced free of duty, and it is also influenced by alterations in the tariff, but in the absence of recent and accurate statistics, it is quite

impossible to form any idea as to the extent of this variation, which is not likely, however, to be large enough to materially affect the correctness of so rough a calculation as the foregoing.

The purchasing capacity of the country, on the other hand, is highly susceptible of fluctuation, as it depends directly on the prosperity of the country, and especially on the success of the harvests. During the past 3 years, owing to drought and other causes, these have been exceptionally bad, so much so, indeed, that it was found necessary last year to import large quantities of maize from the United States, in order to prevent actual famine. Considering that, coincident with the agricultural distress, the average premium on gold during the fiscal year 1892-93, rose to 50 per cent. (the highest annual average ever reached), it is a surprising fact that the import duties should not have fallen below 18,000,000 dol. (only 17 per cent. below the maximum), and one which affords a striking proof of the vitality of Mexico, even under the most disadvantageous circumstances. The present year promises very well for the agricultural interests, and there is every prospect that the harvest will be above the average, so that there are good grounds for expecting that the consequent increased movement of trade will, to some extent, at any rate, compensate the loss arising from the fall in value of the silver dollar. How much increase in the purchasing power of the country in silver is required, at higher rates of premium on gold, in order to provide for an importation (and consequently a customs revenue) equal to that of the year 1889-90, may be easily determined by following up the calculation, based on the trade of that year, as follows.

Purchasing
capacity of
country is
variable.

TABLE showing the Number of Silver Dollars required at Different Rates of Exchange to provide for an Importation which would yield 21,725,839 Dol. in Duties to the Government.

Premium on Gold.	Silver Dollars Required.	Excess when Exchange over 30 per Cent.	Excess per Cent.
Per cent.	Dollars.	Dollars.	
30	98,993,339	..	..
40	104,517,980	5,524,641	5.58
50	110,034,333	11,040,994	11.15
60	115,553,139	16,559,800	16.73
70	121,074,319	22,080,980	22.30

It will thus be seen from this and the preceding tables that an increase in the premium on gold from 30 per cent. to 50 per cent. produces, all other things being equal, a loss of 10 per cent. in customs duties to the Government, and that this loss would be compensated by an increase of 11 per cent. in the purchasing power of the country.

Effect of
depreciation
of silver on
customs
revenue.

Taking into consideration the steady advance which is unquestionably being made year by year in agricultural enterprise, and which is proved by the development of the traffic receipts of the railways, I think, that, under normal conditions, an increase of from 10 per cent. to 15 per cent. in the movement of trade in 4 years may be taken to be well within the bounds of reasonable expectation.

Protection
afforded to
native manu-
facturers by
rise in
exchange.

One point still remains to be considered, namely, the effect of the depreciation of silver on the imports of certain foreign manufactures, especially cotton goods, which compete with those of native make, which, by increasing their selling price in silver, makes competition in many cases impossible. There can be no question that this involves another and most serious danger to the revenue; but as the subject is already under the consideration of the Government, there is little doubt that a solution will soon be found for it in the reduction of the duties on those articles to a scale which will leave the native industries on the same footing as regards protection as they were when the existing tariff came into force.

2. Commerce.

Reduction of
purchasing
capacity of
silver dollar
by rise in
exchange.

(a.) By employing the same figures, which form the basis of the foregoing calculations, we find that the amount of the foreign goods purchasable with a given number of silver dollars is reduced by an increase in the premium on gold, while the cost of the goods themselves to the consumer is augmented by it, in the following proportions.

TABLE showing to what extent the amount of Foreign Merchandise (Gold Value), which can be Purchased with 99,000,000 Dol. in Mexican Silver, is affected by an Increase in the Premium on Gold over 30 per cent., and how much 1 Gold Dollar's worth of Foreign Goods will cost in Mexican Silver.

Premium on Gold.	Foreign Goods Purchasable for 99,000,000 dol.		1 dol. worth of Goods, Gold Value.	
	Amount.	Decrease in Amount	Cost in Silver.	Increase in Cost.
Per cent.	Dollars.	Per cent.	Dollars.	Per cent.
30	40,000,000	..	2.47	..
40	37,887,350	5.28	2.61	5.58
50	35,986,677	10.03	2.75	11.15
60	34,267,590	14.33	2.89	16.73
70	32,705,255	18.24	3.03	22.30

The profit of the merchant, however, is not affected thereby, since it is calculated on the silver value of the goods placed in

his warehouse, which remains unchanged, so that, provided the purchasing capacity of the country does not fall off, only the exporters of goods from foreign countries to Mexico would be prejudiced by a higher rate of exchange.

The increase in the selling price of the foreign goods would not, I think, have a perceptible effect on the amount of their sales, as the poorer classes, to whom such a difference would mean a great deal, consume, under ordinary circumstances, very little of any but home-made articles, whereas among the middle and upper classes, who are accustomed to look upon foreign goods as a necessity, the margin between income and necessary expenditure is usually sufficiently large to enable them to stand a considerable increase of price without serious inconvenience. Moreover, it must be borne in mind that this increase of cost falls only on a small proportion of people's income, as all the principal expenses of living, such as food, house rent, servants' wages, &c., are on a silver basis.

B. The returns of the exports from Mexico, as published by the Government, are all rendered in silver dollars, though as a matter of fact some of them represent gold values, and should, therefore, be credited with the proper premium. Neither the silver coin and bullion exported, nor the ores and other silver products in the different stages of reduction, are affected by the depreciation of silver in so far as regards the present inquiry, which has for its object the determining of the purchasing power of the country in silver dollars. On the other hand, the values in silver dollars of the gold coin and bullion exported, as well as of the agricultural products, which are estimated at gold prices, are increased in proportion to the rise in the premium on gold.

In the fiscal year 1889-90, the amount of the gold exports was 24,402,218 dol., which, converted into silver at 30 per cent., represents 31,722,883 dol. The excess of silver value, over and above this sum, which would be realised from the sale of these exports at higher rates of exchange, will be found in the accompanying table:—

TABLE showing the extent to which the Selling Value in Mexican Silver Dollars of 24,402,218. Dol. worth of Exports (Gold Value) would be affected by an Increase in the Premium on Gold over 30 per cent.

Premium on Gold.	Equivalent Value in Silver.	Increase of Silver Value.	Percentage of Increase.
Per cent.	Dollars.	Dollars.	
30	31,722,883		
40	34,163,105	2,440,222	7.69
50	36,603,327	4,880,444	15.38
60	39,043,549	7,320,666	23.08
70	41,483,771	9,760,888	30.77

Effects of rise
in exchange
on exports
and imports
considered
together.

The depreciation of silver, therefore, is, to a certain degree, self-compensating in its effects on Mexican commerce, since, while it increases the cost of imported goods, it increases also the selling value of a certain proportion of the exports. I have already shown that an importation equal to that of the year 1889-90 would require a purchasing capacity in Mexican silver of 11,040,994 dol. more when the premium on gold was at 50 per cent. than when it was (as in that year) at 30 per cent., whereas by the preceding table it can be seen that the same difference of exchange would give a greater value to the exports by 4,880,444 dol. It follows, then, that if the relative values of the imports and the gold exports which ruled in the year 1889-90 remained unchanged, a loss on the former by a fall in silver would be set off to the extent of 44 per cent. by a gain on the latter. An increase in the gold exports, such as has actually taken place (vide Table V. in the appendix), without a corresponding increase in the imports, would, of course, augment the percentage of this offset, until a point would be reached when the foreign trade of Mexico would practically cease to be influenced by any fluctuations in the price of silver.

The internal
movement of
trade not
affected.

C. The internal movement of trade in Mexico, which is estimated at over 300,000,000 dol., being entirely on a silver basis, is in no way influenced by the present question, so that the effect of the depreciation of silver on the imports becomes of much less importance if considered in its relation to the total commerce of the country, and I even think that prices would adapt themselves to any value which silver might reach, with little or no prejudice to commerce, provided some degree of stability could be insured to it.

Uncertainty
of future of
silver more
prejudicial to
trade than a
depreciation
in its value.

The real cause of the present unsettled condition of trade is to be found in the element of speculation, which is perforce introduced into the most ordinary business transactions by the rapid fluctuations of silver and the uncertainty of its future. As foreign merchandise is usually sold on six months' credit, it is almost impossible for a merchant to put a price on his goods which will cover every possible eventuality for so long a period, so that importation is for the moment practically suspended, except in so far as the daily wants of the market are concerned, pending the approaching debate in the United States Congress on the repeal of the Sherman Act.

In the interests of Mexican commerce, therefore, it would be preferable that some means should be found to give to silver a value, however small, which would be more or less permanent (as for instance, by allowing it to be governed freely by the law of demand and supply), than that its price should be artificially maintained at a higher rate by legislative action, which at best would only be a temporary measure, and as such would only serve to keep alive the existing feeling of insecurity for the future.

3. Railways.

In order to give some idea of the amount of foreign capital invested in railway enterprise in Mexico, I need only mention that the bonded indebtedness of the Mexican Central and Mexican National Railways alone, without taking into consideration any of the others, is greater than the total foreign debt of the Republic. As this represents a gold investment while the earnings of the railways are all in silver dollars, the depreciation of silver very seriously affects the interests of the bond-holders, and I will therefore attempt to show to what extent it does so.

It would be beyond the scope of this report to analyse in detail the receipts and expenditure of all the railways in Mexico and their future prospects, so I have selected the two already mentioned as examples, as much on account of their having been now in regular working for a sufficient number of years to enable comparisons to be made, as because the larger part of their receipts are derived from local traffic, and therefore afford the best means of gauging the development of railway movement in the country.

The depreciation of silver is felt by the Railway Companies not only in the diminution of their net earnings, when reduced to gold for remission abroad, but also in the increased cost of that part of their expenditure which has to be paid at gold prices, and which is estimated on most of the lines to constitute about one-third of the gross expenditure. Compensation for the losses thus sustained can only be looked for in an increase of traffic receipts, arising, either from the natural growth of the resources of the country (in which case the Railway would still be a loser to the extent of the extra profits it would have made with silver at a higher price) or from the development of new traffic for export, brought into existence, or at any rate greatly augmented, by a high rate of premium on gold, and it remains therefore to be seen what grounds exist for expecting such an increase.

At the rate of 30 per cent. premium on gold (adopted as the normal rate in the previous calculations) 1,000,000 of silver dollars is equivalent to 769,230 dol. in gold. The following table shows what additional sum in silver would be required to give the same equivalent at higher rates of exchange:—

Premium on Gold.	Equivalent in Silver Dollars of 769,230 Dol. Gold.	Excess of Silver Dollars required when the Premium on Gold is over 30 per Cent.	
		Amount.	Percentage.
Per cent.	Dollars.	Dollars.	
30	1,000,000	..	..
40	1,076,922	76,922	7·69
50	1,153,840	153,840	15·38
60	1,230,768	230,768	23·08
70	1,307,691	307,691	30·77

Increase in
gross and net
earnings.

By comparing the returns of these two railways for the year 1892 with those of 1889, we find an increase in gross earnings of 27 per cent. and in net earnings of $33\frac{1}{2}$ per cent., both in Mexican currency :—

Description.	Amount.		Increase per Cent.
	1889.	1892.	
	Dollars.	Dollars.	
Gross earnings—			
Mexican Central	6,337,225	7,963,254	
Mexican National	3,660,124	4,756,030	
Total	9,997,349	12,719,284	27·2
Net earnings—			
Mexican Central	2,825,398	2,961,467	
Mexican National	666,693	1,700,613	
Total	3,492,091	4,662,080	33·5

To meet the distress arising from the failure of the crops, a large quantity of maize was imported from the United States in the year 1892 and part of 1891, the freight of which over these two lines amounted to somewhat under 1,000,000 dol., which must be considered as an abnormal receipt.

On the other hand, the difference this made to the net earnings was inconsiderable, as the freight rates were fixed at prices very little in excess of the actual cost of hauling, so that the profit obtained would certainly have been more than compensated by that of the local movement of grain in an ordinary year.

Moreover, in comparing the net and gross earnings of the Central Railway, it must be borne in mind that the company has opened to traffic about 450 miles of new line within the last three years which entailed much higher proportionate working expenses than the older part of the line.

I think, therefore, that taking everything into consideration, we shall be well within the mark in considering the increase of $33\frac{1}{2}$ per cent. in net earnings in 4 years, or say about 8 per cent. per annum, to represent the ordinary increase of railway movement which may be counted on from year to year, and which is attributable to the general progress of the country and the development of its resources. Such an annual increase would more than compensate a rise in the premium on gold of 10 per cent. in each year.

Possible
development
of new traffic,
owing to rise
in premium
on gold.

It would be mere waste of time to attempt to estimate in figures the extent of the possible development of new traffic for export, arising directly from an increase in the premium on gold, as the conditions under which a fluctuation in exchange would determine whether an article had a commercial value or not must necessarily depend on the special circumstances attending each

case. I shall therefore confine myself to citing some of the low priced and bulky products which at present are either not utilised at all or only on a comparatively small scale, and which might be very largely exported if their selling price were sufficiently increased by a rise in exchange to stand the expense of the railway freights.

Ixtle (*agave heteracantha*), a fibrous plant which flourishes in hot and dry districts, is found growing wild in most of the Central and Northern States of the Republic, especially San Luis Potosi, Coahuila and Tamaulipas. The fibre is gathered and cleaned by hand, and finds its principal market in the United States and Germany. As its market value is very small (the New York quotations during the present year having ranged from 3 c. to 4 c. gold per lb.), it does not pay to collect it except under favourable conditions of freight and labour. An increase, therefore, in its silver value of from 15 per cent. to 20 per cent. would certainly stimulate its export considerably. The year of its largest exportation was 1889-90 when 7,500 tons were shipped abroad. In the last year, 1891-92, the exports were only 6,600 tons. Ixtle fibre.

Raiz de zacaton, known in England as broom root or Mexican whisk, is the root of a grass (*epicampes macroura*) which is found growing wild all over the highlands of Mexico under more or less similar conditions to the ixtle. The principal markets for it are France, Germany and the United States, and the price has ranged in New York in the present year between 7 c. and 10 c. per lb. This industry has grown very considerably in the last 4 years, the exports for 1891-92 having exceeded 4,000 tons, and as the amount available is practically unlimited, requiring only collection and cleaning which is very cheap, there is no doubt but that with an increased premium on gold a much larger exportation may be expected. Raiz de zacaton.

Barley is raised in Mexico under ordinary circumstances exclusively for home consumption, although occasionally, when exchange has been high in former years, shipments have been made to foreign countries, principally to Germany. When the premium on gold is at 50 per cent. or over, there is no doubt but that it can be profitably exported from certain localities. The annual crop amounts to somewhat under 10,000,000 bushels, and as it does not require irrigation, a very large quantity might be raised for export without interfering with other crops. Barley.

Beans, which constitute one of the most important branches of agriculture in Mexico, can also be profitably exported to Cuba and other countries under favourable conditions of exchange. Beans.

Two kinds of sugar are manufactured in Mexico, namely, the ordinary crystallised sugar, more or less white, and "piloncillo" or "panela," which is merely the cane juice boiled down in open pans in the crudest way and formed into cakes. The crystallised sugar is used for table purposes by the better classes and fetches a very high price, while the "piloncillo," being cheap, is consumed Sugar.

in large quantities by the lower classes, and is also in much demand for preserving fruits and for similar purposes.

The annual production of "piloncillo" is estimated at over 75,000 tons, and might be almost indefinitely increased were a profitable market opened for it, as it requires no costly machinery for its preparation, and can therefore be produced as well by the small farmer as by the rich "hacendado." When the premium on gold is over 50 per cent., it can be exported at a profit from districts where the conditions of freight are favourable.

Fruits.

Comparatively little attention has been given to the exportation of fruit from Mexico, although immense quantities are raised annually throughout the country, and are either sold at the most absurdly low prices, or allowed to rot on the ground. An interesting return published by the Government of the State of Michoacan, through which the National Railway runs, shows that the annual production, in that State, of bananas, oranges, limes, and lemons, apples, peaches, prickly pears, guayabas, and water melons, amounts to over 64,000 tons, without counting other tropical fruits little known abroad, and an immense quantity of pumpkins. With a high rate of exchange there is little doubt but that some of these might be profitably exported.

In conclusion, I think I have said sufficient to show that there are reasonable grounds for expecting an increase of traffic to the railways, due directly to the depreciation of silver, which will compensate them to some extent for the losses it entails on them in other ways. It must be borne in mind, however, that the Mexicans are a conservative and slow-moving people, and not given to venture on untried enterprises until they are very sure of their ground. The development of new export traffic therefore will depend in great measure on the liberality of the policy which the railway companies may adopt in freight rates, and on the means they may take to call public attention to the profits to be derived from it.

4. *Manufactures.*

Home manu-
factures not
affected by
depreciation
of silver.

All the expenses connected with manufacturing in Mexico are paid in silver money, with the exception of that part of the raw material consumed (about 20 per cent. in the case of cotton) which is imported from abroad. The selling prices of the goods produced being also in silver, a depreciation in the value of that metal has little or no influence either way on the manufacturing interests, except in so far as, by making foreign goods more expensive, it adds to the already very high tariff protection afforded to the home industry, and makes competition from outside much more difficult, and in many cases impossible.

5. *Mining.*

General
misapprehen-
sion as to

A great deal of misapprehension exists, especially in Europe, as to the effects of the depreciation of silver on the silver mining

industry in Mexico, and I have seen more than one article in English financial papers prophesying the approaching bankruptcy of the country, owing to the impossibility of profitably producing the metal which constitutes so large a proportion of its exports, at the present prices.

As a matter of fact, the price at which silver may be quoted abroad in its relation to gold is of little importance to the miner, who sends his bullion to the mint to be coined, and pays his expenses with the dollars which he receives in return, while, even if he exports his bullion, his position remains unaltered, as the rate of exchange is dependent on the price of silver, and rises in almost exact proportion to the fall of that metal.

To exemplify this, I will cite the case of a shipment of 10,000 troy ounces of silver of standard fineness. At the market price of 4s. 2d. per ounce this would represent 2,083l. 6s. 8d., which, when drawn for, at the corresponding rate of exchange of 42 $\frac{1}{10}$ d. per dol. represents 11,876 dol. or about 1.18 dol. per troy ounce. At the market price of 3s. the same shipment would sell for only 1,500l., but the exchange being then at only 30 $\frac{11}{100}$ d. to the dollar, it would produce exactly the same amount in Mexican money, so that the selling value of the ounce of silver would remain unchanged, in so far as the Mexican miner was concerned. In this calculation I have purposely omitted the expenses attending the shipment of the silver so as to present the matter in the simplest and clearest form. The relation between the price of bar silver per ounce and exchange per dol., which is as 100 is to 84.20, is taken from the mean of the actual quotations extending over 8 years (vide Table II in the Appendix).

As the selling value of silver in Mexican dollars is not influenced by its depreciation in foreign markets, it only remains to be seen whether the cost of its production is rendered greater by it. All the expenses of mining in Mexico are paid in silver dollars, with the single exception of the articles of foreign production or manufacture which are used, as, for instance, mining tools, bar steel, wire rope, blasting powder and dynamite, coke for the smelting furnaces, and quicksilver and various chemicals for other processes of reduction. Unfortunately, the want of statistics makes it impossible to speak authoritatively as to the relation which this cost bears to the value of the exports of silver and silver products, but judging from information I have obtained from different trustworthy sources I think that 10 per cent. would be a liberal estimate. Taking, then, the last year's output as a basis for calculation, the amount on which the depreciation of silver would be felt would be 4,814,539 dol.

In a former table I have shown that a rise in the premium on gold from 30 to 60 per cent. would increase the cost of foreign merchandise by 16.73 per cent., so that at the latter rate the silver mining industry would suffer a loss of 805,472 dol., or 1.67 per cent. on the gross output.

Before accepting this loss as an absolute one, some account must be taken of the gold which is found associated with the silver (1631)

effects of depreciation of silver on silver mining in Mexico.

Price of silver abroad does not influence its value in Mexico in Mexican dollars.

Cost of mining, how influenced by rise exchange.

Silver ores in Mexico usually carry some gold.

silver, and which does not figure in the returns of the gold coin and bullion exported. It is, I think, no exaggeration to say that silver ores carrying no gold at all are the exception in Mexico, although I do not mean to imply that the gold is always found in quantities which would pay for its separation, and I only mention the fact in order to call attention to its very general distribution.

In the returns of exports for 1891-92 the amount of gold bullion exported is set down at 751,408 dol., whereas the mint returns show that bullion containing 3,395,163 dol. in silver and 1,432,360 dol. in gold, destined for exportation, was passed through the different mints for the payment of dues in that year, which proves that the difference of 680,952 dol. worth of gold must have been associated with the silver. Moreover, more than half of the bullion exported was shipped without passing through the mints, the dues being paid in the custom-houses at the places of shipment. Part of this amount (1,294,087 dol.) was declared as "silver mixed with gold," from which it must be assumed that the proportion of gold was fairly large, while in the remainder there is sure to have been some gold, though perhaps only in small quantity. The amount of gold exported in silver bullion, without separate mention of its value, may, therefore, be safely estimated at about 1,500,000 dol.

Besides this, a certain proportion of gold is contained in the silver ores exported, which, in the year 1891-92, were valued in the official returns of exports at 10,478,263 dol. As a general rule, it may be said that in silver mines, where part of the ores are beneficiated in the country and part are exported, those containing the most gold are selected for export, in view of the large percentage of loss of that metal which occurs when treated locally. I do not think, therefore, that it would be any exaggeration to estimate the value of the gold contents of the ores exported at 10 per cent. of their total value.

Estimate of
amount of
gold exported
in silver ores
and bullion.

Without taking into consideration what may be contained in the silver sulphides or argentiferous lead which were exported, the gold which leaves the country associated with silver and classified as such in the returns cannot be less than 2,500,000 dol., which represents about 5 per cent. of the value of the total produce of the silver mines. That this estimate may not be considered unduly high, I will cite the silver mining district of Guanajuato, where the silver output of 4,500,000 dol. carries 600,000 dol., or 13 per cent., of gold.

To resume, the effect of a rise of 30 per cent. in the premium on gold would give them an extra value of 750,000 dol. to the products classified in silver, which would almost entirely set off the loss sustained in the purchase of foreign mining supplies due to the same rise, so that the silver mining industry in Mexico may be said to be practically unaffected by the depreciation of silver.

Gold and
copper
mining.

It is scarcely necessary to mention that a depreciation of silver offers a premium on gold mining in countries like Mexico,

where the mining cost is payable in silver, and there is little doubt but that its present very low price will cause many already known gold mines, the ores of which had become of too low grade to yield a profit, to be again worked, and will stimulate prospecting for new deposits.

The same applies equally to other metals, such as copper, lead, antimony, and zinc, which exist in large quantities throughout the Republic, as well as to the deposits of asphalt and petroleum which are found in several States, especially in that of Vera Cruz.

6. *Agriculture.*

The agricultural interests, so far as they relate to the raising of products for home consumption, are in no way affected by a depreciation in the price of silver, as the expenses of cultivation and the selling price are both reckoned in silver money.

In the case of produce raised for export, however, a rise in the premium on gold is a clear gain to the farmer, as his expenses remain the same while the value of his crop in Mexican dollars, being determined by the prices ruling in foreign markets, in gold, is increased in exact proportion to the rise.

Under the head of Railways I have already called attention to certain products calculated to furnish freight for the Railways, which are mostly raised on the Central Plateau, and which can be profitably exported under favourable conditions of exchange, but there is no doubt that the most remunerative agricultural industries are to be found in the tropical and semi-tropical districts on the Atlantic and Pacific slopes.

An account, however cursory, of all the different tropical products raised for export in Mexico would unduly lengthen this report, so I will confine myself to merely mentioning the names of some of these for which the soil and climate are especially well suited, and which have for many years been profitably cultivated, as for instance, sisal hemp, coffee, tobacco, vanilla, rubber, cacao, indigo, sugar, and tropical fruits, especially bananas.

To give some idea of the extra profits made by the planters through the rise in the price of gold, I will cite the case of coffee, which is now beginning to be looked upon as one of the most paying of agricultural industries. It is usually estimated in the Cordova district that the cost of gathering and preparing coffee for the market and delivering it at the railway, including all the general expenses connected with the plantation, amounts to about 7 dol. per 100 lbs. As its price in the American market in the past two years has been about 20 c. gold per lb., a rise in the premium on gold from 30 to 60 per cent. would represent 6 dol. in silver, a sum very nearly equal to the entire cost of its production. Under such circumstances, tropical agriculture in Mexico offers to investors a better return for their money than any other industry, with this immense advantage, that, whereas the original outlay of capital required for the purchase of a

Present
moment
favourable
for encourag-
ing invest-
ment of
capital in
tropical
agriculture.

plantation, as well as the current working expenses, are all in silver dollars, the produce is always sold on the basis of gold prices, and it is therefore quite independent of any possible future fluctuations in the value of silver. In order then to take advantage of the conditions of exchange which make the present moment an exceptionally favourable one for such investments, it would seem to be the interest of the Government that they should take immediate steps to bring the facts before the notice of the investing public in foreign countries, not only pointing out the profits to be derived from the cultivation of different products, but also giving the fullest information as to the price of land, how and where it can be acquired, the best routes for reaching Mexico, the cost of passages, and, in a word, all the points which a possible immigrant would want to know to enable him to form some opinion as to the advisability of settling here.

By judicious action taken in this direction, the depreciation of silver, which is now regarded by so many people in Mexico as an unmixed evil, may prove to be of immense benefit to the country in stimulating the exports of agricultural produce as compared with those of the precious metals, and so equalising the two that a rise or a fall in exchange would scarcely affect their united value, whether estimated in gold or in silver dollars.

Conclusion.

In the foregoing report I have not ventured to give any opinion as to what the future price of silver will be, but have limited myself to attempting to show what effect any given depreciation of its value, if fairly permanent, would produce on Mexico. In order to avoid a repetition of tabulated statements, I have in the following resumé adopted the rate of 2s. 6d. per Mexican dollar as a possible future value, and I need only add that by means of the tables in the body of the report and in the appendix any other rate can be easily applied to the same calculations.

A depreciation, then, in the value of the Mexican dollar (for the purposes of exchange) from 3s. 1d. to 2s. 6d., which is equivalent to a rise in the premium on gold from 30 to 60 per cent., would produce the following effects:—

1. The Government would suffer a direct loss of 2,016,757 dol. on the payments it has to make abroad. It would also suffer an indirect loss in its customs revenue of 3,113,536 dol., provided the purchasing power of the country in dollars did not vary from what it was in the fiscal year 1889–90. There are, however, strong grounds for believing that this purchasing power will be largely augmented.

It may now be considered a certainty that this year's harvest will, at the very lowest estimate, be not less than that of 1889–90, so that the amount of money available for the purchase of foreign merchandise will be at least the same.

On the other hand, there has been a notable increase in the exports, not only in amount, but also in the silver value of those articles, the selling price of which being in gold is improved by a rise in exchange. The last year for which we have complete returns of the exports is 1891-92, but judging from the steady increase observable during the past 10 years it is safe to assume that the exports for the current year will not fall short of that one. By comparing, then, the value of the exports for 1889-90 (see Table VI. of the appendix) with that of 1891-92, calculated at 60 per cent. premium as regards the gold values, we find an increase of 21,897,522 dol.

I have pointed out in another part of the report that an importation (and, therefore, a customs revenue) equal to that of 1889-90 would require, when the premium on gold is at 60 per cent., a purchasing power in excess of that year of 16,559,800 dol. in silver, an amount which I have just shown is more than provided by the increase in the exports. Unless, therefore, some other factor is introduced to influence the correctness of the calculation, and assuming that the premium on gold does not average throughout the year more than 60 per cent., there would appear to be no reason why the customs revenue for the current fiscal year should fall short of that which was collected in 1889-90.

2. As the stocks of merchandise on hand have been considerably reduced in the past year, it is probable that the actual loss suffered by the commercial classes would be restricted to very narrow limits, and that prices would soon adapt themselves to the altered conditions of exchange, without much prejudice to the amount of sales.

3. The railway companies would unquestionably suffer at first from a rise of 30 per cent. in the premium on gold, which would require an increase of 23 per cent. in their net earnings in order to make it good. They would, however, find some compensation in the ordinary development of their traffic, which is increasing at the rate of about 8 per cent. a year, and by the opening up of new traffic for export rendered possible by the improvement in the selling prices of certain products.

4. The local manufacturing industries are practically uninfluenced by a depreciation of silver.

5. The profits of silver miners in Mexico are not affected by a reduction in the gold value of that metal, as the greater part of the expenses of mining is payable in silver dollars, while the increase in the cost of supplies imported from abroad is set off by the very general existence of a small proportion of gold in the silver ores. Mexico therefore can continue to produce silver profitably when countries on a gold basis such as the United States and Australia can no longer do so.

On the other hand, a depreciation of silver would very greatly stimulate the mining of gold, copper, and the baser metals, all of which are found in more or less abundance throughout the country.

6. Finally, the profits to be derived from the cultivation of
(1631)

agricultural products for export would be largely increased by a depreciation of silver, while those intended for home consumption would not be affected by it one way or another.

In striking a balance between the advantages and disadvantages arising to different interests in Mexico from a depreciation of silver, it must be borne in mind that the losses which would be sustained by the Government and the railway companies are essentially limited in their amount, whereas the benefits which would accrue to certain of the productive industries are susceptible of indefinite extension. Moreover, an increase in the productiveness of the country would make itself felt at once in an increase in the revenues of the Government, as well as of the railways.

The only conclusion, then, at which it is possible to arrive is that a low price of silver, if permanent, would not only not be prejudicial to Mexico as a whole, but would conduce to its ultimate benefit by the stimulus it would afford to the development of its immense agricultural resources.

Annex 1.—TABLE showing the relation between the Price of Mexican Silver Dollars in Pence, and in Gold Dollars, and the corresponding Premium on Gold.

Value of the Mexican Dollar in Pence.	Equivalent Premium on Gold.	Equivalent of the Mexican Dollar in Gold Dollars.	Equivalent to £. in Mexican Dollars.
<i>d.</i>	Par	Dollars.	Dollars.
48		1·00	5·00
47	2·12	97·92	5·11
46	4·35	95·83	5·22
45	6·66	93·76	5·33
44	9·09	91·67	5·45
43	11·61	89·59	5·58
42	14·29	87·48	5·71
41	17·07	85·41	5·85
40	20·00	83·33	6·00
39	23·07	81·25	6·15
38	26·31	79·17	6·31
37	29·73	77·08	6·48
36	33·33	75·00	6·66
35	37·14	72·91	6·85
34	41·18	70·83	7·06
33	45·45	68·75	7·27
32	50·00	66·67	7·50
31	54·84	64·59	7·74
30	60·00	62·50	8·00
29	65·58	60·39	8·28
28	71·43	58·33	8·57
27	77·78	56·25	8·88
26	84·61	54·17	9·23
25	92·00	52·08	9·60
24	100·00	50·00	10·00

Annex 2.—TABLE showing the Mean Prices of Bar Silver, Mexican Silver Dollars, and of Exchange on London at 60 Days' Sight, during the past Ten Years, both calendar as well as fiscal.

CALENDAR YEARS.

Year.	London Price of Bar Silver per Ounce.	London Price of Mexican Dollars per Ounce.	Exchange on London at 60 days' Sight.
	<i>d.</i>	<i>d.</i>	<i>d.</i>
1883	50½	49½	42½
1884	50½ ¹ / ₈	49½ ¹ / ₈	42½
1885	48½ ¹ / ₈	47½	40½
1886	45½ ³ / ₈	44½	38½
1887	44½ ³ / ₈	43½ ⁹ / ₁₆	37½
1888	42½ ³ / ₈	42½ ¹ / ₈	36½
1889	42½ ⁹ / ₁₆	41½	35½ ⁵ / ₁₆
1890	47½	46½	40½ ¹ / ₈
1891	45	43½ ¹ / ₈	37½
1892	39½	38½	33½

FISCAL YEARS.

Year.	London Price of Bar Silver per Ounce.	London Price of Mexican Dollars per Ounce.	Exchange on London at 60 days' Sight.
	<i>d.</i>	<i>d.</i>	<i>d.</i>
1883-84	50½	49½	42½ ³ / ₈
1884-85	49½ ³ / ₈	48½ ⁷ / ₈	41½
1885-86	47½ ¹ / ₈	46½ ⁷ / ₈	39½
1886-87	45½ ¹ / ₈	43½	37½
1887-88	43½	42½ ¹ / ₈	36½
1888-89	42½ ¹ / ₈	41½ ⁹ / ₁₆	35½
1889-90	44½	43½ ¹ / ₈	37½
1890-91	48½ ¹ / ₈	46½ ⁵ / ₈	40½
1891-92	42½ ⁷ / ₈	40½ ³ / ₈	35½ ³ / ₈
1892-93	38½	37½	32½ ¹ / ₈

NOTE 1.—Average exchange on London since the beginning of 1886 when payment of interest on the debt was resumed—37½¹/₈ *d.*

NOTE 2.—Relation between prices of bar silver and exchange during the past 8 years, since railway communication was opened with the United States, thereby cheapening the cost of remittance of dollars.

Average price of bar silver 45½¹/₈ *d.*; average price of exchange, 37½⁵/₁₆ *d.*

Difference between exchange and bar silver, 7½²/₈ *d.*, or 15·80 per cent.

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Annex 3.—TABLE showing the Gold Value of the Foreign Merchandise which could be Purchased with 98,993,000 dol. in Mexican Silver at different Rates of Premium on Gold, and the consequent variations in the amount of the Customs Duties receivable which would result therefrom.

	Premium on Gold at 30 per Cent.	Premium on Gold at 40 per Cent.	Premium on Gold at 50 per Cent.	Premium on Gold at 60 per Cent.	Premium on Gold at 70 per Cent.	Premium on Gold at 100 per Cent.
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Prime cost gold	40,000,000	37,887,850	35,986,677	34,287,590	32,705,255	28,770,163
Exchange	12,000,000	15,154,940	17,993,338	20,560,554	22,893,678	28,770,163
Prime cost silver	52,000,000	53,042,290	53,980,015	54,828,144	55,598,933	57,540,326
Freight and expenses (20 per cent.)	10,400,000	10,608,458	10,796,008	10,965,629	11,119,787	11,508,065
Tariff duties	21,725,839	20,578,361	19,546,027	18,612,303	17,763,727	15,626,398
Additional duties	1,955,325	1,862,053	1,769,143	1,675,107	1,598,736	1,406,376
Merchants' expenses and profit (15 per cent.)	86,081,164	86,081,162	86,081,188	86,081,183	86,081,183	86,081,165
Cost in Mexican silver	12,912,175	12,912,174	12,912,178	12,912,177	12,912,177	12,912,175
	98,993,339	98,993,336	98,993,366	98,993,360	98,993,360	98,993,340

Annex 4.—TABLE showing the Exports of Silver from Mexico during the past Ten Fiscal Years, whether in Coin, Bullion, or other forms.

Fiscal Years.	Silver Coin.	Silver Bullion.	Silver Ores.	Argentiferous Lead.	Silver Sulphides, &c.	Total.
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
1882-83 ..	22,969,584	4,773,928	592,189	13,025	252,128	28,600,855
1883-84 ..	25,999,876	5,312,310	898,355	6,200	308,193	32,523,934
1884-85 ..	25,394,262	5,399,297	1,382,897	8,666	242,456	32,877,568
1885-86 ..	21,969,958	5,261,501	1,809,837	26,527	176,435	29,243,268
1886-87 ..	21,955,760	6,128,239	3,737,883	3,944	1,216,491	33,041,417
1887-88 ..	16,841,118	6,089,058	5,923,804	51,772	888,705	30,398,957
1888-89 ..	22,686,337	6,862,510	7,623,589	19,789	964,861	38,157,086
1889-90 ..	23,084,489	7,628,830	6,394,562	..	945,903	38,053,883
1890-91 ..	17,622,171	7,480,354	8,874,457	..	1,511,988	35,488,940
1891-92 ..	26,478,376	7,553,757	10,478,264	1,457,878	1,877,124	48,145,399

MEXICO.

Annex 5.—TABLE showing the Exports from Mexico of Gold Coin and Bullion and of Agricultural Produce, the Value of which is estimated in Gold, during the past Ten Fiscal Years.

Fiscal Years.	Gold Coin, Bullion, and Ores.	Coffee.	Henequen.	Cabinet Woods.	Hides and Skins.	Tobacco.	Other Articles.	Total.
		Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
1882-83	..	1,717,191	3,311,063	1,917,324	1,653,166	272,160	3,280,343	13,179,550
1883-84	..	1,579,021	4,165,020	2,008,914	1,747,255	307,970	3,424,957	14,182,486
1884-85	..	1,201,673	3,988,791	1,752,346	1,779,957	412,913	3,601,811	13,683,774
1885-86	..	1,699,724	2,928,116	1,688,799	2,133,360	528,568	4,761,750	14,404,460
1886-87	..	2,827,477	3,901,628	1,848,793	2,211,438	850,807	4,174,790	16,131,019
1887-88	..	2,431,025	6,229,160	1,752,297	1,864,470	880,362	4,770,143	18,484,987
1888-89	..	3,886,034	6,872,593	1,390,215	2,011,129	971,886	6,209,912	21,969,958
1889-90	..	4,811,000	7,392,245	1,739,188	1,913,129	948,332	7,040,917	24,402,218
1890-91	..	6,150,359	7,048,557	1,726,527	1,804,829	1,105,447	7,110,597	25,713,748
1891-92	..	5,514,355	6,358,220	1,676,351	1,931,791	1,746,928	8,812,141	27,031,691

NOTE.—In the above table I have omitted the item of "valores en papel," which represent shares and bonds sent out of the country, and which figure in the Government returns as gold exports. In the year 1884-85, this item amounted to 159,503 dol.; in 1890-91, to 2,073,707 dol.; and in 1891-92, to 290,626 dol. In the other years the amounts were small. In other respects this table tallies exactly with the Government returns.

Annex 6.—TABLE showing the True Value in Mexican Silver Dollars of the Total Exports from Mexico during the past Ten Fiscal Years, obtained by reducing the Gold Values to Silver at the Current Rate of Exchange of each Year.

Fiscal Years.	Exports of Gold and Agricultural Produce.	Premium, on Gold	Equivalent Value in Silver.	Exports of Silver.	Total Exports in Silver Dollars.
1882-83 ..	Dollars. 13,179,550	18.44	Dollars. 14,950,881	Dollars. 28,600,864	Dollars. 43,551,735
1883-84 ..	14,182,485	14.00	16,168,034	32,523,934	48,691,968
1884-85 ..	13,635,774	14.97	15,674,750	32,877,568	48,552,318
1885-86 ..	14,404,460	20.37	17,338,648	29,243,258	46,581,906
1886-87 ..	16,184,619	27.58	20,588,781	33,041,417	53,625,198
1887-88 ..	18,484,987	30.17	24,061,907	30,398,957	54,460,864
1888-89 ..	21,969,958	34.27	29,499,083	38,157,036	67,656,119
1889-90 ..	24,402,218	28.86	31,444,698	38,053,884	69,498,582
1890-91 ..	25,713,748	19.25	30,663,644	35,488,940	66,152,584
1891-92 ..	27,031,691	34.03	36,230,575	48,145,399	84,375,974

Annex 7.—Table showing the True Value in Gold Dollars of the Total Exports from Mexico during the past Ten Fiscal Years, obtained by Reducing the Silver Values to Gold at the Current Rate of Exchange of each Year.

Fiscal Years.	Exports of Silver, Coin, Bullion, &c.	Premium on Gold.	Equivalent Value in Gold.	Exports of Gold and Agricultural Produce.	Total Exports in Gold Dollars.
1882-83 ..	..	13.44	Dollars. 25,212,318	Dollars. 13,179,550	Dollars. 38,391,868
1883-84 ..	..	14.00	28,529,766	14,182,486	42,712,252
1884-85 ..	..	14.97	28,596,548	13,633,774	42,230,322
1885-86 ..	..	20.37	24,294,474	14,404,460	38,698,934
1886-87 ..	..	27.58	25,898,586	16,184,019	42,082,605
1887-88 ..	..	30.17	23,363,274	18,484,987	41,848,261
1888-89 ..	..	34.27	28,418,177	21,969,958	50,388,135
1889-90 ..	..	28.86	29,631,184	24,402,218	53,933,402
1890-91 ..	..	19.25	29,760,117	25,713,748	55,473,865
1891-92 ..	..	34.03	35,921,360	27,031,691	62,953,051

Annex 8.—TABLE showing the Exports of Silver Dollars from Mexico during the past Ten Fiscal Years as compared with the Coinage.

Fiscal Years.	Coinage— Silver Dollars.	Export— Silver Dollars.	Excess of Coinage over Exports.	Excess of Exports over Coinage.
	Dollars.	Dollars.	Dollars.	Dollars.
1882-83	24,083,951	22,969,584	1,114,367	..
1883-84	25,377,879	25,999,878	..	622,497
1884-85	25,840,728	25,394,262	446,466	..
1885-86	26,991,805	21,969,958	5,021,847	..
1886-87	26,844,081	21,955,760	4,888,271	..
1887-88	26,862,977	16,841,118	9,021,859	..
1888-89	26,031,222	22,686,337	3,344,886	..
1889-90	24,328,326	23,084,489	1,243,837	..
1890-91	24,237,449	17,622,171	6,615,278	..
1891-92	25,363,543	26,478,376	..	1,114,833

NOTE.—Excess of coinage over exports in the past ten fiscal years, 29,959,451 dol.

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MEXICO.

MEXICO.

Mr. P. Le Poer Trench to the Earl of Rosebery.

My Lord,

Mexico, October 17, 1893.

I HAVE the honour to forward to your Lordship herewith an interesting Report drawn up by Mr. Bland, Her Majesty's Secretary of Legation, and to which he has devoted much time and labour, on the Railways in operation and in course of construction in the Republic of Mexico, accompanied by detailed Statistics showing the Working of the Principal Lines.

I have, &c.

(Signed) P. LE POER TRENCH.

Mr. Godfrey D. Bland to Mr. Le Poer Trench.

Sir,

Mexico, October 16, 1893.

I HAVE the honour to transmit to you herewith a brief Report on the Railways now existing in this Republic, accompanied by Statistics as to the Working of the Principal Lines. In compiling the Statistics I have been much indebted to the assistance kindly offered to me by Mr. Clegg, Chief Engineer and General Manager of the Inter-oceanic Railway.

In the Statistics of Receipts and Expenditure of the various lines, I have been obliged to give the amounts in Mexican dollars, the fluctuations in the value of silver during the last few years having been so constant as to render it impossible to convert those amounts with accuracy into pounds sterling.

The present value of the Mexican dollar is about 2s. 5½d.

I have, &c.

(Signed) GODFREY D. BLAND.

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A 2

*Report on the Railways in Operation and in Course of Construction
in the Republic of Mexico, with Statistics.*

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Mexican-Vera Cruz Railway.

This railway is the oldest in the Republic, and the difficulties attending its construction have made it almost historical. The work was commenced as early as 1858, and after a series of interruptions from political and financial causes the line was opened from Mexico to Vera Cruz in January, 1873, by President Sebastian Lerdo de Tejada.

The main line from Vera Cruz to the capital is 265 miles in length and passes through the towns of Cordoba, Orizaba, Esperanza, San Márcos, Apizaco, Ometusco, &c. The line has two branches, one from Apizaco to Puebla, 29 miles long, and one from Ometusco to Pachuca, 28 miles long. There was originally also a line worked by mules running between Jalapa and a station on the main line about 9 miles from Vera Cruz. The branch from Apizaco to Puebla serves principally as a means of communication between the city of Mexico and Puebla, which is probably the town of next importance to the capital. The branch to Pachuca was constructed for the purpose of obtaining the import and export trade of the chief mining centre of the country.

The line is of standard gauge 4 ft. 8½ in., and is well and soundly constructed; in fact the mountain section between Paso del Macho and Esperanza is probably as good an example of difficult railway construction as is to be found in America. This section has grades averaging about 1 in 25, and is worked entirely by Fairlie engines.

The railway is worked and owned by an English Company. Its equipment is the best in the Republic; and its arrangements for handling cargo in the port of Vera Cruz are very complete, with the exception that their landing pier does not extend into deep water, and they have consequently trouble at times in getting loaded lighters alongside.

The capital expended on the construction of this line has been enormous, but for many years the railway enjoyed a monopoly of the import trade at excessively high rates, and so was able gradually to reduce its capital and even pay interest on the ordinary shares. To-day, owing to keen competition, it can pay no interest on its ordinary shares, and probably no more than 4 per cent. on the preferred stock. In examining the statistics with regard to this line it is interesting to note that while in 1887, owing to non-competition, its working expenses did not exceed 35 per cent. on the gross earnings, in 1892 they had risen to over 52 per cent.—the gross receipts having fallen from 4,146,768 dol. in 1889, to 3,014,952 in 1892.

Mexican Central Railway.

This railway, a standard gauge line, is the longest in the Republic, having a mileage of 1,824 miles.

The line was commenced at the city of Mexico on May 25, 1880, and joined the frontier of the United States, at the station called Ciudad Juarez on the Rio Grande, on March 8, 1884. It has two branches of importance, one from Silao to the town of Guadalajara, capital of the State of Jalisco, which was originally intended to extend westward from Guadalajara to a port on the Pacific Coast called San Blas. This extension, however, has not been carried out, nor is it likely to be for many years, if at all.

The other branch is from Aguascalientes to Tampico, a port at the mouth of a big river called the Panuco, running into the Gulf of Mexico. The object of the construction of this line was, no doubt, to obtain a large proportion of the European import and export trade, and a very large sum of money has been expended on harbour works at Tampico for the purpose of enabling ocean-going ships to pass the bar at the mouth of the river, and come up to a wharf at the side of the river near the town of Tampico, where they would discharge directly into the railway wagons. The nature of the works carried out at the estuary of the river are somewhat similar to those at the mouth of the Mississippi—consisting of two long jetties, one on either side of the river's mouth, which extend out to sea until deep water is reached. The object has been so to confine the current of the river that by natural action it scours the sand away from the bar, depositing it at so great a distance from the shore as to insure deep water over the deposit at all times. The works have been more or less successful, and a depth of 19 feet can generally be calculated upon over the bar.*

It is very doubtful, however, whether these works and the branch line in connection with them will ever pay any interest on the cost of construction, for as a matter of fact scarcely any

* Mr. Robinson, the President of the Railway, who has recently been on a tour of inspection of the line, is reported to have stated that the Tampico Harbour has at present a clear channel of 22½ ft.

freight is hauled from Tampico to Mexico city, the principal reason for this being the existence of other railways, viz., the Mexican-Vera Cruz and the Interoceanic—which have very much shorter lines to a gulf port. It is true that Tampico as a harbour might serve to receive and distribute merchandise destined for the northern districts of the Republic, but these districts have few requirements, and such as they have are mostly supplied from the United States by rail from the frontier.

One of the facts which militates against the Central Railway is that its mileage between Mexico city and the frontier of the United States is excessive as compared with that of the Mexican National. It is thus little likely to be much used as a passenger line by persons travelling between Mexico and the United States. In constructing the line the object no doubt was to develop new territory, and to open up such towns as Guertara, Irapuato, Silao, Aguascalientes, Leon, Fresnillo, Torreon, Zacatecas, Chihuahua, &c., but it is a peculiarity of Mexico that railway communication between provincial towns does not seem much to increase their prosperity—and the donkey, the mule, and the Indian still are, and will probably continue to be for a considerable time, strong competitors of the railways as carrying factors.

The statistics of this railway show a fair increase in gross receipts. In 1887, 1,236 miles of line earned a gross revenue of 4,886,579 dol., whereas in 1892, 1,825 miles earned 7,963,253 dol., but it must be observed that the increase in gross earnings has been practically eaten up by expenditure, for while in 1887 the expenditure was 1,999 dol. per mile, in 1892 it was 2,741 dol.

The equipment and working of the line is worthy of great praise, and the fact that it is the only standard gauge route between the city of Mexico and the United States procures for it a certain percentage of the through passenger traffic. Its experience, however, tends to prove that long and devious railways through new countries are at the start non-productive, unless they are without competition in their terminal points, and have a distinct and sure trade between those points. It must be borne in mind that this line runs for many miles through a very arid and uncultivated part of the country.

Mexican National Railway.

This is a narrow gauge line originally constructed with a view of supplying quick transit for merchandise and passengers between Mexico city and the United States via the frontier town of Laredo on the Rio Grande. It is practically throughout its length in competition with the Mexican Central, except with regard to traffic between local points not touched by it. The distance by this line from Mexico city to the frontier is 837 miles, as against 1,231 miles by the Central, but of course the latter road reaches the frontier at a point considerably north-west of Laredo.

The National Line is of 3 feet gauge, and the section between Mexico and Toluca, a distance of 30 miles, is very heavily graded; but on the whole the grades on both the Central and the National are very light, the northern divisions of both lines running over level plains.

The works on this road were commenced about the year 1880 and the line was completed in 1888. It runs through a probably less rich district than the Central, but touches the latter line at Celeya and San Luis Potosi, from this last point going almost due north to the frontier. Financially it has undergone a good many fluctuations, but is now doing fairly well, the receipts per mile having risen from 3,427 dol. in 1889 to 4,596 dol. in 1892. Its working expenses have in consequence fallen from 80 per cent. of the gross receipts in 1889, to a little over 62 per cent. in 1892. There may have been perhaps deficiencies at times in the condition of the permanent way and rolling stock of the line, but now that its financial prospects have brightened, efforts are being made to remedy all such defects.

This railway carries the Government mails between the United States and Mexico city, and there is every probability that it will in the future be the most successful financially of any in the Republic, but it will take some years to develop its local traffic sufficiently to enable it to pay fair dividends.

Interoceanic Railway.

There has been communication by this line between Mexico city and Vera Cruz since May, 1891. An English Company took over the line on the 1st of July of that year, and proceeded to complete and fully equip it. Since that date great changes have been made in its general condition. It is now ballasted throughout its entire length, and not only have the original soft wood sleepers been for the most part replaced by oak and other hard wood, but 150,000 steel through sleepers have been put into the road to ensure perfect safety on the sharp curves and with a view to subsequent saving in the cost of maintenance, many new and commodious stations have also been built at points along the line, and the service generally is now all that can be desired.

The keen competition which exists with the Mexican Railway renders it very difficult for this road to show satisfactory net results, and some time must elapse before there is sufficient development of local industries and agriculture along the line of route to make it a financial success.

The Company is now building an extension from Jojutla, the present terminus on the Morelos division, to a point called Amacusac in the State of Guerrero. The extension is 22 kiloms. in length, and is being constructed with the object of obtaining the carriage of the sugar and aguardiente produced in the southern part of the Cuernavaca Valley. It enjoys a Government subvention of 8,000 dol. a kilom., and is being built for about 1,000 dol. in excess of that sum.

In the year 1891 the company took over from the concessionnaire, Mr. Delfin Sánchez, a branch line from Puebla to Matamoros Izucar, and since that date Mr. Sánchez has extended the line from Matamoros Izucar to the town of Chiantla a distance of 18 kiloms. The earthworks and masonry have also been constructed for some 20 kiloms. beyond Chiantla, but financial reasons have caused the work to be suspended for the present. The object of this line is to open up the State of Guerrero and to complete the Interoceanic Railway, as originally projected, as far as the port of Acapulco on the Pacific Coast.

Mexican Southern Railway.

This line is of a similar gauge (3 feet) to that of the Interoceanic, with which it connects at Puebla, running from that city in a south-westerly direction to Oaxaca, the capital of the State of that name. The principal towns of importance touched by this road are :—Amozoc, Tepeaca, Tecamachalco, Tehuacan, San Antonio, Quioitepec, Cuicatlan, El Parian, San Pablo, Huitzo, and Etlá. The line was completed to Oaxaca and opened to traffic on the 14th of November, 1892, and its ultimate object is to connect with a point on the railway being constructed across the Isthmus of Tehuantepec. The original concession granted a yearly subvention, or rather guarantee, of 2,400 dol. a kilom. for the space of 15 years, but this subvention was subsequently converted into 6 per cent. silver bonds.

The work has been carried out in a sound and yet economical manner. A great part of the line has steel sleepers, and the rails weigh 50 lb. per lineal yard, or 10 lb. more than those of the Interoceanic or National Railways, which are of the same gauge. As in the case of several other railways in Mexico, it is found that the traffic of the line is small, and only very slowly developing; and although the rates which it is possible to charge are high owing to non-competition, it is probably as yet a difficult matter for the undertaking to meet its liabilities. The railway is owned and managed by a British Company.

Sonora Railway.

This line runs from the port of Guaymas in the State of Sonora, and on the Pacific Coast, to Nogales, a point on the United States frontier. Its length is about 262 miles, and it connects the towns of Hermosillo, the capital of Sonora, Peoqueira and Magdalena, running for the most part through a mining country. Its earnings per mile are small and not likely to increase for several years. The gauge is standard, and the subsidy was 7,000 dol. per kilom., the construction and equipment of the line costing from 2,800l. to 3,000l. per mile.

Mexican International Railway.

A standard gauge line commenced in the year 1882, and completed in the year 1892, from Ciudad Porfirio Diaz, on the Rio Grande frontier of the United States, to Durango the capital of the State of the same name. This line was built without subvention. It crosses and connects with the Central Railway at Torreon, and thus serves to give an outlet for the latter line at a point on the United States frontier considerably south-east of El Paso. At this point the International is in direct communication with the Southern Pacific Railway, and so with New Orleans and other towns in the Southern States. It was constructed by the proprietors of the Southern Pacific Railway, and, as far as can be judged by appearances, has little or no local traffic.

Hidalgo Railway.

This line starting from the city of Mexico runs to Pachuca through Irolo, a point at which both the Mexican and the Inter-oceanic Railways have stations. The section to Irolo is practically supported by the pulque traffic, but of course suffers competition from the two other above-mentioned lines. The main line from Mexico to Pachuca is 109 kiloms. in length, and within the last year a branch has been constructed from Tepa, 26 kiloms. from Pachuca, to Las Lajas, a distance of 31 kiloms. A further branch has also lately been constructed from Tizayuca on the main line, 51 kiloms. from Mexico city, to Zumpango and Teoloyucan, a mineral district. The line is of narrow gauge and had a subsidy of 8,000 dol. per kilom. It has been built and worked entirely by a native syndicate, and has now developed a very fair amount of traffic, probably paying some 7 per cent. or 8 per cent. on the capital invested.

Mexico, Cuernavaca and Pacific Railroad.

This railway was projected in 1886, and a concession obtained for a standard gauge line from Mexico city to the valley of Cuernavaca and thence to a port on the Pacific Coast known as the Bay of Siuatanejo, 140 miles north of Acapulco.

An American syndicate is now at work on the road, and its construction is completed as far as Contreras, some 10 miles from Mexico city. Some of the earthworks are also in a state of progress on the slopes of the mountains, which have to be surmounted between Mexico and Cuernavaca. The line enjoys no subvention, and the work to complete it even so far as Cuernavaca will be very heavy.

Tehuantepec Railway.

This line is as yet not quite completed. It is destined to connect the Atlantic and Pacific Oceans by crossing the Isthmus of Tehuantepec from Goatzacoalcos, on the Gulf of Mexico to Salina Cruz, a point on the Pacific coast. The length of the line when completed will be about 200 miles, and some 30 miles in the centre of the Isthmus still remains to be constructed.

The project was initiated a considerable number of years ago, and the Mexican Government have raised loans and expended very large sums of money in endeavouring to complete the work. More than a year ago a vigorous attempt was made by Messrs. Hampson and Stanhope to finish the line with the sums still remaining for the purpose at the disposal of the Government, but in spite of great energy and perseverance the attempt was not entirely successful. There is just a possibility at present of a German Bank, already interested in the enterprise, coming to the assistance of the Government and advancing the sum necessary for the construction of the remaining 30 miles, but no decision has as yet been come to in the matter.

In the event of the completion of the line, before it could practically be available for extensive traffic between the two oceans, large harbour works and jetties would have to be constructed at the Mexican Gulf end, and a breakwater of considerable size would be needed at the Pacific port of Salina Cruz.

There are no other railways of importance in the country. Several short lines are, however, in existence near the coast.

One in the State of Sinaloa from Culiacan, the capital of the State, to a port on the Pacific called Altata.

Also one in the State of Colima from Manzanillo on the Pacific coast to Colima, the capital of the State. This road was constructed by the Mexican National Construction Company with the object of reaching the city of Mexico via Patzcuaro, a point on the Morelia branch of the Mexican National Railway. Several attempts have been made in the last two years to raise money for the completion of this work, but hitherto without success.

In the State of Yucatan there is also a small railway, running from the port of Progreso through Mérida, the capital, to Tekax, with some short feeders for the purpose of opening up the henequen industry. In the contiguous State of Campeche, there is also another short line from the port of the same name to Pomuctu. These two lines have been constructed with native capital and statistics of the traffic have not been published. It is probable, however, that in view of the extremely flourishing condition of the henequen industry, they more than pay their way.

The receipts of the district railways of the city of Mexico are, it will be observed, inserted in the accompanying statistics. These so-called railways are practically street tramways, and are entirely run by mules, with the exception of about 10 miles from Mexico

Annex 1.—TABLE showing Receipts and Expenditure of the Mexican Central Railway during the Years 1887-92.

RECEIPTS.

Year.	Average Miles of Line Operated.	Passengers.																Goods.					Miscellaneous.		Total.					
		Numbers.				Percentages.			Numbers to Mile of Line Operated.				Receipts.				Receipts per Mile of Line Operated.	Average Receipt per Passenger.				Tons.	Tons per Mile of Line Operated.	Receipts.	Receipts per Mile of Line Operated.	Average Earnings per Ton Carried.	Receipts.	Earnings per Mile of Line Operated.	Receipts.	Earnings per Mile of Line Operated.
																		Average Receipt per Passenger.												
		First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	Total.		First Class.	Second Class.	Third Class.	Total.									
Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	
1887 ..	1,236	51,574	157,038	392,781	601,393	8.58	26.11	65.31	42	127	318	487	361,509	319,325	554,450	1,235,284	999	7.01	2.03	1.41	2.05	346,898	281	3,458,006	2,798	9.97	193,289	157	4,886,579	3,954
1888 ..	1,316	46,850	154,711	380,406	581,967	8.05	26.58	65.37	36	117	289	442	403,791	338,784	578,937	1,321,512	1,004	8.62	2.19	1.52	2.27	477,530	363	4,244,649	3,226	8.93	208,170	158	5,774,331	4,388
1889 ..	1,462	60,210	162,676	452,258	675,144	8.92	24.09	66.99	41	111	310	462	418,984	337,436	663,956	1,420,376	972	6.96	2.07	1.47	2.10	540,479	370	4,683,291	3,203	8.67	233,558	160	6,337,225	4,335
1890 ..	1,527	59,820	146,546	517,562	723,928	8.26	20.24	71.50	39	96	339	474	421,203	301,606	713,509	1,436,318	941	7.04	2.06	1.38	1.98	609,382	399	4,702,142	3,079	7.72	287,234	188	6,425,694	4,208
1891 ..	1,665	64,536	147,916	530,541	742,993	8.69	19.91	71.40	39	89	318	446	422,764	305,724	742,453	1,470,941	883	6.55	2.07	1.40	1.98	867,657	521	5,625,669	3,379	6.48	277,928	167	7,374,538	4,429
1892 ..	1,825	72,797	149,543	512,085	731,425	9.95	20.04	70.01	40	80	281	401	429,784	304,163	705,624	1,439,571	789	5.90	2.08	1.38	1.97	1,091,785	598	6,183,149	3,388	5.66	340,533	187	7,963,253	4,364
Average for six years..	1,505	59,298	152,572	464,272	676,142	8.77	22.57	68.66	39	101	309	449	409,672	317,840	659,822	1,387,334	922	6.91	2.08	1.42	2.05	655,622	436	4,816,151	3,200	7.35	256,785	171	6,460,270	4,293

EXPENDITURE.

Year.	Average Miles of Line Operated.	Maintenance of Way Works and Stations.				Locomotive Expenses.				Maintenance of Carriages and Wagons.				Traffic Expenses.				General Expenses.				Total.		
		Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.
		Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.	
1887	1,236	759,917	615	15.55	27.96	1,116,653	904	22.85	41.09	144,776	117	2.96	5.33	581,386	470	11.89	21.40	114,721	93	2.34	4.22	2,717,453	2,199	55.61
1888	1,316	782,523	595	13.55	22.89	1,416,426	1,076	24.53	41.43	218,103	166	3.78	6.38	819,464	623	14.19	23.97	182,322	138	3.16	5.33	3,418,838	2,598	59.21
1889	1,462	858,034	587	13.54	24.43	1,401,397	958	22.11	39.91	228,451	156	3.60	6.51	798,010	546	12.59	22.72	225,935	155	3.57	6.43	3,511,827	2,402	55.41
1890	1,527	795,353	521	12.38	19.88	1,685,831	1,104	26.24	42.13	299,491	196	4.66	7.49	939,012	615	14.61	23.47	281,483	184	4.38	7.03	4,001,170	2,620	62.27
1891	1,665	955,049	574	12.95	20.41	1,967,838	1,182	26.68	42.05	319,925	192	4.34	6.84	1,111,165	667	15.07	23.74	325,811	196	4.42	6.96	4,679,788	2,811	63.46
1892	1,825	925,912	507	11.63	18.51	2,149,472	1,178	26.98	42.98	322,267	177	4.05	6.44	1,251,571	686	15.72	25.02	352,565	193	4.43	7.05	5,001,787	2,741	62.81
Average for six years	1,505	846,131	562	13.10	21.76	1,622,936	1,079	25.12	41.74	255,502	170	3.95	6.57	916,768	609	14.19	23.58	247,140	164	3.83	6.35	3,888,477	2,584	60.19

Annex 2.—TABLE showing Receipts and Expenditure of the Mexican National Railway during the Years 1887-92.

RECEIPTS.

Year.	Average Miles of Line Operated.	Passengers.																		Goods.					Miscellaneous.		Total.			
		Numbers.				Percentages.			Numbers to Mile of Line Operated.				Receipts.				Receipts per Mile of Line Operated.	Average Receipts per Passenger.				Tons.	Tons per Mile of Line Operated.	Receipts.	Receipts per Mile of Line Operated.	Average Earnings per Ton Carried.	Receipts.	Earnings per Mile of Line Operated.	Receipts.	Earnings per Mile of Line Operated.
		First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	Total.		First Class.	Second Class.	Third Class.	Total.									
1887 ..	395	10,789	26,493	121,119	158,401	6·81	16·73	76·46	27	67	307	401	Dollars. 19,004	Dollars. 38,149	Dollars. 85,884	Dollars. 143,037	Dollars. 362	Dollars. 1·76	Dollars. 1·44	Dollars. 0·79	Dollars. 0·90	77,935	197	Dollars. 283,238	Dollars. 717	Dollars. 3·63	Dollars. 45,058	Dollars. 114	Dollars. 471,333	Dollars. 1,193
1888 ..	688	36,412	106,567	384,003	526,982	6·91	20·22	72·87	30	92	347	469	71,496	163,620	283,539	518,655	754	1·96	1·54	0·74	0·98	372,800	542	1,349,044	1,961	3·62	164,896	239	2,032,595	2,954
1889 ..	980	40,589	118,074	359,492	518,155	7·83	22·79	69·38	41	121	367	529	171,748	220,100	401,448	793,296	810	4·23	1·86	1·12	1·53	428,314	437	2,371,871	2,420	5·54	193,214	197	3,358,381	3,427
1890 ..	980	37,539	121,637	397,554	556,730	6·74	21·85	71·41	38	124	406	568	168,517	215,787	436,677	820,981	838	4·49	1·77	1·10	1·47	472,045	482	2,420,393	2,470	5·13	208,741	213	3,450,115	3,521
1891 ..	980	32,491	143,884	442,544	618,919	5·25	23·25	71·50	33	147	452	632	193,191	241,755	510,883	945,829	965	5·95	1·68	1·15	1·53	502,856	513	2,772,338	2,829	5·51	235,952	241	3,954,119	4,035
1892 ..	980	37,054	151,814	417,950	606,818	6·11	25·02	68·87	38	155	426	619	220,315	239,512	463,690	923,517	943	5·95	1·58	1·11	1·52	588,505	601	3,284,234	3,352	5·58	295,850	302	4,503,601	4,596
Average for six years ..	834	32,479	111,412	353,777	497,668	6·52	22·39	71·09	39	134	424	597	140,712	186,487	363,687	690,886	828	4·33	1·67	1·03	1·39	407,076	488	2,080,186	2,494	5·11	190,619	229	2,961,691	3,551

EXPENDITURE.

Year.	Average Miles of Line Operated.	Maintenance of Way Works and Stations.				Locomotive Expenses.				Maintenance of Carriages and Wagons.				Traffic Expenses.				General Expenses.				Total.		
		Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.
		Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.	
1887	395	126,841	321	26·91	30·31	128,369	325	27·24	30·67	20,639	52	4·38	4·93	106,875	271	22·67	25·53	35,822	91	7·60	8·56	418,546	1,060	88·80
1888	688	564,660	821	27·78	30·25	694,606	1,010	34·17	37·21	77,973	113	3·84	4·18	427,728	622	21·05	22·92	101,473	147	4·99	5·44	1,866,440	2,713	91·83
1889	980	484,012	494	14·41	18·05	1,165,962	1,190	34·72	43·47	145,459	148	4·33	5·42	710,409	725	21·15	26·49	176,123	180	5·25	6·57	2,681,965	2,737	79·86
1890	980	386,807	395	11·21	14·67	1,156,672	1,180	33·53	43·88	159,097	162	4·61	6·04	753,006	769	21·82	28·57	180,418	184	5·23	6·84	2,636,030	2,690	76·40
1891	980	431,684	440	10·92	15·67	1,226,961	1,252	31·03	44·54	155,421	159	3·94	5·64	769,143	785	19·45	27·92	171,530	175	4·34	6·23	2,754,739	2,811	69·68
1892	980	403,417	412	8·96	14·39	1,239,711	1,316	28·64	46·00	151,059	154	3·35	5·39	785,213	801	17·44	28·00	174,431	178	3·87	6·22	2,803,831	2,861	62·26
Average for six years ..	834	399,570	479	13·49	18·22	943,714	1,131	31·87	43·02	118,275	142	3·99	5·39	592,062	710	19·99	26·99	139,966	168	4·73	6·38	2,193,587	2,630	74·07

Annex 3.—TABLE showing the Receipts and Expenditure of the Interoceanic Railway during the Years 1887-92.

RECEIPTS.

Year.	Average Miles of Line Operated.	Passengers.																Goods.				Miscellaneous.		Total.						
		Numbers.				Percentages.			Numbers to Mile of Line Operated.				Receipts.				Receipts per Mile of Line Operated.	Average Receipts per Passenger.				Tons.	Tons per Mile of Line Operated.	Receipts.	Receipts per Mile of Line Operated.	Average Earnings per Ton Carried.	Receipts.	Earnings per Mile of Line Operated.	Receipts.	Earnings per Mile of Line Operated.
		First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	Total.		First Class.	Second Class.	Third Class.	Total.									
1887 ..	229	32,731	..	387,013	419,744	7·80	..	92·20	143	..	1,690	1,833	Dollars. *33,069	..	Dollars. *148,631	181,700	793	1·01	..	0·38	0·43	141,090	616	Dollars. *468,211	2,045	Dollars. 3·32	Dollars. *30,599	134	Dollars. 680,510	2,972
1888 ..	229	54,579	..	618,590	673,169	8·11	..	91·89	238	..	2,701	2,939	Dollars. *48,218	..	Dollars. *206,592	254,810	1,113	0·88	..	0·33	0·38	197,231	861	Dollars. *617,015	2,694	Dollars. 3·13	Dollars. *41,048	179	Dollars. 912,873	3,986
1889 ..	257	46,915	..	549,897	596,812	7·36	..	92·14	182	..	2,140	2,322	Dollars. 51,184	..	Dollars. 220,379	271,563	1,057	1·09	..	0·40	0·46	186,222	725	Dollars. 667,128	2,596	Dollars. 3·58	Dollars. 43,720	170	Dollars. 982,411	3,822
1890 ..	376	63,337	..	594,279	657,616	9·63	..	90·37	168	..	1,581	1,749	Dollars. 84,740	..	Dollars. 298,367	383,107	1,019	1·34	..	0·50	0·58	281,769	749	Dollars. 1,090,305	2,900	Dollars. 3·87	Dollars. 63,694	169	Dollars. 1,537,106	4,088
1891 ..	443	77,872	..	717,753	795,625	9·79	..	90·21	176	..	1,620	1,796	Dollars. 128,411	..	Dollars. 357,120	485,531	1,096	1·65	..	0·50	0·61	277,866	627	Dollars. 1,102,449	2,489	Dollars. 3·97	Dollars. 45,268	102	Dollars. 1,633,248	3,687
1892 ..	519	82,345	..	717,142	799,487	10·30	..	89·70	158	..	1,382	1,540	Dollars. 108,992	..	Dollars. 359,414	468,406	902	1·32	..	0·50	0·59	365,191	704	Dollars. 1,289,034	2,484	Dollars. 3·53	Dollars. 118,397	228	Dollars. 1,875,837	3,614
Average for six years ..	342	59,630	..	597,446	657,076	9·08	..	90·92	174	..	1,747	1,921	Dollars. 75,769	..	Dollars. 265,084	340,853	997	1·27	..	0·44	0·52	241,562	706	Dollars. 872,357	2,551	Dollars. 3·61	Dollars. 57,121	167	Dollars. 1,270,331	3,715

* Estimated.

EXPENDITURE.

Year.	Average Miles of Line Operated.	Maintenance of Way Works and Stations.				Locomotive Expenses.				Maintenance of Carriages and Wagons.				Traffic Expenses.				General Expenses.				Total.		
		Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.
1887 ..	229	Dollars. ..	Dollars. ..	..	..	Dollars. ..	Dollars. ..	..	..	Dollars. ..	Dollars. ..	..	..	Dollars. ..	Dollars. ..	..	..	Dollars. ..	Dollars. ..	..	..	Dollars. 670,425	Dollars. 2,928	98·52
1888 ..	229	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Dollars. 508,980	Dollars. 2,223	55·76
1889 ..	257	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Dollars. 518,124	Dollars. 2,016	52·74
1890 ..	376	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Dollars. 614,437	Dollars. 1,634	39·97
1891 ..	443	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Dollars. 1,116,391	Dollars. 2,520	68·35
1892 ..	519	391,252	754	20·86	26·01	529,627	1,020	28·23	35·22	60,721	117	3·24	4·04	355,269	685	18·94	23·62	167,107	322	8·91	11·11	Dollars. 1,503,976	Dollars. 2,898	80·18
Average for six years ..	342	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Dollars. 822,055	Dollars. 2,404	64·71

Annex 4.—TABLE showing Receipts and Expenditure of the Mexican Railway during the Years 1887-92.

RECEIPTS.

Year.	Average Miles of Line Operated.	Passengers.																		Goods.					Miscellaneous.		Total.			
		Numbers.				Percentages.			Numbers to Mile of Line Operated.				Receipts.				Receipts per Mile of Line Operated.	Average Receipts per Passenger.				Tons.	Tons per Mile of Line Operated.	Receipts.	Receipts per Mile of Line Operated.	Average Earnings per Ton Carried.	Receipts.	Earnings per Mile of Line Operated.	Receipts.	Earnings per Mile of Line Operated.
		First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	Total.		First Class.	Second Class.	Third Class.	Total.									
1887 ..	293	27,468	65,101	275,555	368,124	7·46	17·69	74·85	94	222	940	1,256	Dollars. 137,450	Dollars. 175,280	Dollars. 311,810	Dollars. 624,540	Dollars. 2,132	Dollars. 5·00	Dollars. 2·69	Dollars. 1·13	Dollars. 1·70	273,194	932	Dollars. 2,966,665	Dollars. 10,125	Dollars. 10·86	Dollars. 100,591	Dollars. 343	Dollars. 3,691,796	Dollars. 12,600
1888 ..	293	28,439	68,913	282,153	379,505	7·49	18·16	74·35	97	235	963	1,295	149,300	189,870	319,085	658,255	2,247	5·25	2·76	1·13	1·73	318,893	1,088	3,182,440	10,861	9·98	101,738	347	3,942,433	13,455
1889 ..	293	30,077	73,827	321,671	425,575	7·07	17·35	75·58	103	252	1,098	1,453	162,340	203,030	356,535	721,905	2,464	5·40	2·75	1·11	1·70	354,321	1,209	3,301,650	11,268	9·32	123,213	421	4,146,768	14,153
1890 ..	295	36,218	83,878	362,782	482,878	7·50	17·37	75·13	123	284	1,230	1,637	152,640	178,305	332,200	663,145	2,248	4·21	2·13	0·92	1·37	384,584	1,304	3,350,315	11,357	8·71	116,434	395	4,129,894	14,000
1891 ..	321	49,939	100,966	452,032	602,937	8·28	16·75	74·97	156	314	1,408	1,878	189,785	206,695	401,815	798,295	2,487	3·80	2·05	0·89	1·32	409,185	1,275	3,069,370	9,562	7·50	113,645	354	3,981,310	12,403
1892 ..	321	50,989	108,272	459,527	618,788	8·24	17·50	74·26	159	337	1,432	1,928	180,285	206,965	398,085	785,335	2,446	3·54	1·91	0·87	1·27	367,980	1,146	2,132,590	6,644	5·80	97,027	302	3,014,952	9,392
Average for six years ..	303	37,188	83,493	358,953	479,634	7·75	17·41	74·84	123	275	1,185	1,583	161,967	193,357	353,255	708,579	2,338	4·36	2·32	0·98	1·48	351,360	1,160	3,000,505	9,903	8·54	108,775	359	3,817,859	12,600

EXPENDITURE.

Year.	Average Miles of Line Operated.	Maintenance of Way Works and Stations.				Locomotive Expenses.				Maintenance of Carriages and Wagons.				Traffic Expenses.				General Expenses.				Total.		
		Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.
		Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.	
1887 ..	293	293,553	1,002	7·95	22·71	449,068	1,533	12·16	34·73	72,654	248	1·97	5·62	272,688	931	7·39	21·09	204,970	699	5·55	15·85	1,292,933	4,413	35·02
1888 ..	293	255,016	870	6·47	19·11	516,654	1,763	13·11	38·72	68,169	233	1·73	5·11	291,118	994	7·38	21·82	203,425	694	5·16	15·24	1,334,382	4,554	33·85
1889 ..	293	269,726	922	6·50	18·54	620,983	2,119	14·98	42·69	54,323	185	1·31	3·73	313,119	1,068	7·55	21·53	196,561	671	4·74	13·51	1,454,712	4,965	35·08
1890 ..	295	265,196	899	6·42	16·35	702,786	2,403	17·16	43·70	74,039	251	1·80	4·57	350,247	1,187	8·48	21·60	223,474	757	5·41	13·78	1,621,742	5,497	39·27
1891 ..	321	298,539	930	7·50	17·27	743,827	2,317	18·68	43·04	87,010	271	2·19	5·03	366,654	1,143	9·21	21·21	232,430	724	5·84	13·45	1,728,430	5,385	43·42
1892 ..	321	281,830	878	9·35	17·57	707,675	2,205	23·47	44·13	63,759	214	2·28	4·29	323,565	1,008	10·73	20·17	221,902	691	7·36	13·84	1,603,731	4,996	53·19
Average for six years ..	303	277,310	915	7·26	18·41	624,499	2,061	16·36	41·47	70,826	233	1·86	4·70	319,565	1,055	8·37	21·22	213,793	706	5·60	14·20	1,505,993	4,970	39·45

Annex 5.—TABLE showing the Receipts and Expenditure of the Sonora Railway during the Years 1887-92.

RECEIPTS.

Year.	Average Miles of Line Operated.	Passengers.																Goods.					Miscellaneous.		Total.					
		Numbers.				Percentages.			Numbers to Mile of Line Operated.				Receipts.				Receipts per Mile of Line Operated.	Average Receipts per Passenger.				Tons.	Tons per Mile of Line Operated.	Receipts.	Receipts per Mile of Line Operated.	Average Earnings per Ton Carried.	Receipts.	Earnings per Mile of Line Operated.		
		First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	Total.		First Class.	Second Class.	Third Class.	Total.									
1887 ..	262	7,441	7,593	23,745	38,779	19·19	19·58	61·23	28	29	91	148	Dollars. 30,689	Dollars. 18,312	Dollars. 39,509	Dollars. 88,510	Dollars. 338	Dollars. 4·12	Dollars. 2·41	Dollars. 1·66	Dollars. 2·28	34,661	132	Dollars. 161,285	Dollars. 616	Dollars. 4·65	Dollars. 21,016	Dollars. 80	Dollars. 270,811	Dollars. 1,034
1888 ..	262	7,096	7,223	24,234	38,553	18·40	18·74	62·86	27	23	92	147	29,763	16,766	38,766	85,295	325	4·19	2·32	1·60	2·21	37,621	144	175,238	669	4·66	17,725	68	278,258	1,062
1889 ..	262	12,221	7,494	29,051	48,766	25·06	15·37	59·57	47	28	111	186	44,145	18,579	41,855	104,579	399	3·61	2·48	1·44	2·14	43,322	165	211,609	808	4·88	19,285	73	335,473	1,280
1890 ..	262	9,588	6,419	33,007	49,014	19·56	13·10	67·34	37	24	126	187	36,829	14,900	46,150	97,879	374	3·84	2·32	1·40	2·00	46,148	176	227,418	868	4·93	16,009	61	341,306	1,303
1891 ..	262	18,116	7,674	37,204	62,994	28·76	12·18	59·06	69	29	142	240	56,325	19,211	49,022	124,558	475	3·11	2·50	1·32	1·98	53,948	206	271,195	1,035	5·03	32,868	126	428,621	1,636
1892 ..	262	18,877	7,620	34,086	60,583	31·16	12·58	56·26	72	29	130	231	61,075	19,036	43,775	123,886	473	3·24	2·50	1·28	2·64	61,508	246	340,395	1,299	5·28	45,037	172	509,308	1,944
Average for six years ..	262	12,223	7,337	30,221	49,781	24·55	14·74	60·71	47	28	115	190	43,138	17,801	43,179	104,118	397	3·53	2·43	1·43	2·09	46,701	178	231,188	882	4·95	25,323	97	360,629	1,376

EXPENDITURE.

Year.	Average Miles of Line Operated.	Maintenance of Way Works and Stations.				Locomotive Expenses.*				Maintenance of Carriages and Wagons.				Traffic Expenses.				General Expenses.				Total.		
		Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.
1887	262	Dollars. 74,861	Dollars. 286	27·64	27·60	..	..	..	..	Dollars. 33,486	Dollars. 128	12·37	12·35	Dollars. 139,557	Dollars. 532	51·53	51·46	Dollars. 23,288	Dollars. 89	8·60	8·59	Dollars. 271,192	Dollars. 1,035	100·14
1888	262	77,798	297	27·96	29·28	..	..	..	..	28,250	108	10·15	10·63	138,301	528	49·70	52·06	21,322	81	7·67	8·03	265,671	1,014	95·48
1889	262	88,108	336	26·26	29·96	..	..	..	..	37,578	144	11·20	12·78	143,313	555	43·32	49·41	23,077	88	6·88	7·85	294,076	1,123	87·65
1890	262	95,857	366	28·09	32·08	..	..	..	..	29,224	112	8·56	9·78	140,615	537	41·20	47·05	33,135	126	9·71	11·09	298,831	1,141	87·56
1891	262	131,923	503	30·78	35·18	..	..	..	..	44,341	169	10·34	11·82	161,163	615	37·60	42·97	37,628	144	8·78	10·03	375,052	1,431	87·50
1892	262	116,695	445	22·91	28·37	..	..	..	..	42,437	162	8·33	10·50	202,731	774	39·81	50·16	42,312	162	8·31	10·47	404,175	1,542	79·36
Average for six years ..	262	97,540	372	27·05	30·66	..	..	..	..	35,886	137	9·96	11·27	154,613	593	42·87	48·63	30,127	115	8·35	9·47	318,163	1,214	88·23

* Included in traffic expenses.

Annex 7.—TABLE showing the Receipts, with Averages, on the Undermentioned Lines of Railway during the Years 1887-92.

Annex 7.—TABLE showing the Receipts, with Averages, on the Undermentioned Lines of Railway during the Years 1887-92.																													
Year.	Railway.	Average Miles of Line Operated.	Passengers.																Goods.					Miscellaneous.		Total.			
			Numbers.				Percentages.			Numbers to Mile of Line Operated.				Receipts.				Receipts per Mile of Line Operated.	Average Receipts per Passenger.				Tons.	Tons per Mile of Line Operated.	Receipts.	Receipts per Mile of Line Operated.	Average Earnings per Ton Carried.	Receipts.	Earnings per Mile of Line Operated.
			First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	Total.	First Class.	Second Class.	Third Class.	Total.		First Class.	Second Class.	Third Class.	Total.							

Annex 8.—TABLE showing the Expenditure, with Averages, on the Undermentioned Lines of Railway during the Years 1887-92.

Year.	Railway.	Miles of Line Operated.	Maintenance of Way Works and Stations.				Locomotive Expenses.				Maintenance of Carriages and Wagons.				Traffic Expenses.				General Expenses.				Total.		
			Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.	Percentage on Gross Expenditure.	Total.	Per Mile of Line Operated.	Percentage on Gross Earnings.
			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.			Dollars.	Dollars.	
1887.	Central ...	1,236	759,917	615	15.55	27.96	1,116,653	904	22.85	41.09	144,776	117	2.96	5.33	581,386	470	11.89	21.40	114,721	93	2.34	4.22	2,717,453	2,199	55.61
	National ...	395	126,841	321	26.91	30.31	123,369	325	27.24	30.67	20,639	52	4.38	4.93	106,875	271	22.67	25.53	35,822	91	7.60	8.56	418,546	1,060	88.80
	Interoceanic ...	229	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	670,425	2,928	98.52
	Mexican ...	293	293,553	1,002	7.95	22.71	443,068	1,533	12.16	34.73	72,654	248	1.97	5.62	272,688	931	7.39	21.09	204,970	699	5.55	15.85	1,292,933	4,413	35.02
	Sonora ...	262	74,861	286	27.64	27.60	...	...	...	...	33,486	128	12.37	12.35	\$ 139,557	532	51.53	51.46	23,283	89	8.60	8.39	271,192	1,035	100.14
	Averages ...	* 1,924 † 2,186 ‡ 2,415	1,180,311 1,255,172 ...	613 574 ...	13.04 13.47 ...	26.65 26.71 ...	1,694,090 1,694,090 ...	881 775 ...	18.72 18.18 ...	38.25 36.04 ...	238,069 271,555 ...	194 124 ...	2.63 2.91 ...	5.37 5.78 ...	960,949 1,100,536 ...	499 504 ...	10.62 11.81 ...	21.70 23.41 ...	365,513 378,801 ...	185 173 ...	3.93 4.06 ...	8.03 8.06 ...	4,438,932 4,700,124 5,370,549	2,302 2,150 2,224	48.14 50.43 53.70
1888.	Central ...	1,316	782,523	595	13.55	22.89	1,416,426	1,076	24.53	41.43	218,103	166	3.78	6.38	819,464	623	14.19	23.97	182,322	138	3.16	5.33	3,418,838	2,598	59.21
	National ...	688	564,660	821	27.78	30.25	694,606	1,010	34.17	37.21	77,973	113	3.84	4.18	427,728	622	21.05	22.92	101,473	147	4.99	5.44	1,866,440	2,713	91.33
	Interoceanic ...	229	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	508,980	2,123	55.76
	Mexican ...	293	255,016	870	6.47	19.11	516,654	1,763	13.11	38.72	68,169	233	1.73	5.11	291,118	994	7.38	21.82	203,425	694	5.16	15.24	1,334,382	4,554	33.85
	Sonora ...	262	77,798	297	27.96	29.28	...	...	...	...	28,250	108	10.15	10.63	\$ 138,301	528	49.70	52.06	21,322	81	7.67	8.03	265,671	1,014	95.48
	Averages ...	* 2,207 † 2,559 ‡ 2,788	1,602,199 1,679,997 ...	697 656 ...	13.64 13.97 ...	24.20 24.40 ...	2,627,686 2,627,686 ...	1,144 1,026 ...	22.36 21.85 ...	39.70 38.16 ...	364,245 392,495 ...	159 153 ...	3.10 3.26 ...	5.50 5.70 ...	1,538,310 1,676,611 ...	670 655 ...	13.09 13.94 ...	23.24 24.35 ...	487,320 508,542 ...	212 198 ...	4.15 4.23 ...	7.36 7.39 ...	6,619,660 6,885,331 7,394,311	2,882 2,691 2,652	56.34 57.25 57.14
1889.	Central ...	1,462	858,034	587	13.54	24.43	1,401,397	958	22.11	39.91	238,451	156	3.60	6.51	793,010	546	12.59	22.72	225,935	155	3.57	6.43	3,511,827	2,402	55.41
	National ...	980	484,012	494	14.41	18.05	1,165,962	1,190	34.72	43.47	145,459	148	4.33	5.42	710,409	725	21.15	26.49	176,123	180	5.25	6.57	2,681,965	2,737	79.86
	Interoceanic ...	257	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	518,124	2,016	52.74
	Mexican ...	293	269,726	922	6.50	18.54	620,983	2,119	14.98	42.69	54,323	185	1.31	3.73	313,119	1,068	7.55	21.53	196,561	671	4.74	13.51	1,454,712	4,965	35.08
	Sonora ...	262	88,108	336	26.26	29.96	...	...	...	...	37,578	144	11.20	12.78	\$ 145,313	555	43.32	49.41	23,077	88	6.88	7.85	294,076	1,123	87.65
	Averages ...	* 2,735 † 2,997 ‡ 3,254	1,611,772 1,699,880 ...	589 567 ...	11.64 11.99 ...	21.07 21.40 ...	3,183,342 3,183,342 ...	1,166 1,064 ...	23.03 22.49 ...	41.69 40.14 ...	428,233 465,811 ...	157 155 ...	3.09 3.29 ...	5.60 5.87 ...	1,821,538 1,966,851 ...	666 656 ...	13.16 13.87 ...	23.51 24.76 ...	598,619 621,696 ...	219 208 ...	4.33 4.38 ...	7.83 7.83 ...	7,643,504 7,942,580 8,460,704	2,797 2,650 2,600	55.25 56.02 55.81
1890.	Central ...	1,527	795,353	521	12.38	19.88	1,685,831	1,104	26.24	42.13	299,491	196	4.66	7.49	939,012	615	14.61	23.47	281,483	184	4.38	7.03	4,001,170	2,620	62.27
	National ...	980	386,807	395	11.21	14.67	1,156,672	1,180	33.53	43.88	159,097	162	4.61	6.04	753,006	769	21.82	28.57	180,418	184	5.23	6.84	2,636,000	2,690	76.40
	Interoceanic ...	376	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	614,437	1,634	39.97
	Mexican ...	295	265,196	899	6.42	16.35	708,786	2,403	17.16	43.70	74,039	251	1.80	4.57	350,247	1,187	8.43	21.60	223,474	757	5.41	13.78	1,621,742	5,497	39.27
	Sonora ...	262	95,857	366	28.09	32.08	...	...	...	...	29,224	112	8.56	9.78	\$ 140,615	537	41.20	47.05	33,135	126	9.71	11.09	298,931	1,141	87.56
	Averages ...	* 2,802 † 3,064 ‡ 3,440	1,447,356 1,543,213 ...	517 504 ...	10.34 10.76 ...	17.52 18.03 ...	3,551,289 3,551,289 ...	1,267 1,159 ...	25.36 24.76 ...	43.00 41.50 ...	532,627 561,851 ...	190 183 ...	3.80 3.92 ...	6.45 6.56 ...	2,042,265 2,182,880 ...	729 712 ...	14.53 15.21 ...	24.73 25.51 ...	686,375 718,510 ...	245 235 ...	4.89 5.00 ...	8.30 8.40 ...	8,268,912 8,557,743 9,172,180	2,948 2,793 2,666	58.97 59.65 57.74
1891.	Central ...	1,665	955,049	574	12.95	20.41	1,967,838	1,182	26.68	42.05	319,925	192	4.34	6.84	1,111,165	667	15.07	23.74	325,811	196	4.42	6.96	4,679,788	2,811	63.46
	National ...	980	431,684	440	10.92	15.67	1,226,961	1,252	31.03	44.54	155,421	159	3.94	5.64	769,143	785	19.45	27.92	171,530	175	4.34	6.23	2,754,739	2,861	69.68
	Interoceanic ...	443	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,116,391	2,520	68.35
	Mexican ...	321	298,539	930	7.50	17.27	743,827	2,317	18.68	43.04	87,010	271	2.19	5.03	366,654	1,143	9.21	21.21	232,430	724	5.94	13.45	1,728,460	5,385	43.42
	Sonora ...	262	131,923	503	30.78	35.18	...	...	...	...	44,341	169	10.34	11.82	\$ 161,160	615	37.60	42.97	37,628	144	8.78	10.03	375,052	1,431	87.50
	Averages ...	* 2,966 † 3,228 ‡ 3,671	1,686,272 1,817,195 ...	568 563 ...	11.01 11.55 ...	18.39 19.05 ...	3,938,626 3,938,626 ...	1,328 1,220 ...	25.72 25.02 ...	42.99 41.29 ...	662,356 606,697 ...	190 188 ...	3.67 3.85 ...	6.14 6.36 ...	2,246,963 2,108,122 ...	768 746 ...	14.68 15.30 ...	24.52 25.25 ...	729,771 767,399 ...	246 238 ...	4.77 4.88 ...	7.96 8.05 ...	9,162,987 9,538,039 10,654,430	3,090 2,955 2,902	59.85 60.60 61.33
1892.	Central ...	1,825	925,912	507	11.63	18.51	2,149,472	1,178	26.98	42.98	322,267	177	4.05	6.44	1,251,571	686	16.72	25.02	352,565	193	4.43	7.05	5,001,787	2,741	62.81
	National ...	980	403,417	412	8.96	14.39	1,289,711	1,316	28.64	46.00	151,059	154	3.35	5.39	785,213	801	17.44	28.00	174,431	178	3.87	6.22	2,803,831	2,861	62.26
	Interoceanic ...	519	391,252	754	20.86	26.01	529,627	1,020	28.23	35.22	60,721	117	3.24	4.04	355,269	685	18.94	23.62	167,107	322	8.91	11.11	1,503,976	2,898	80.18
	Mexican ...	321	281,830	873	9.35	17.57	707,675	2,205	23.47	44.13	68,759	214	2.28	4.29	323,565	1,008	10.73	20.17	221,902	691	7.36	13.84	1,603,731	4,996	53.19
	Sonora ...	262	116,695	445	22.91	28.87	...	...	...	...	42,437	162	8.33	10.50	\$ 202,731	774	39.81	50.16	42,312	162	8.31	10.47	404,175	1,542	79.36
	Averages ...	* 3,126 † 3,388 ‡ 3,907	1,611,159 1,727,854 2,119,106	515 510 543	10.41 10.80 11.86	17.12 17.61 18.72	4,146,858 4,146,858 4,676,485	1,327 1,224 1,197	26.78 25.93 26.18	44.07 42.26 41.32	542,085 584,522 645,243	173 173 165	3.60 3.66 3.61	5.76 5.95 5.70	2,360,349 2,563,080 2,918,349	755 756 747	15.25 16.03 16.33	25.09 26.12 25.79	748,898 791,210 958,817	240 234 245	4.84 4.95 5.36	7.96 8.06 8.47	9,409,349 9,813,524 11,317,500	3,010 2,897 2,897	60.78 61.37 63.34
Average for all years.	Averages ...	* 2,642 † 2,904 ‡ 3,246	1,623,011 1,620,552 ...	577 558 ...	11.50 11.92 ...	20.07 20.50 ...	3,191,149 3,191,149 ...	1,208 1,099 ...	24.10 23.46 ...	42.05 40.36 ...	444,002 480,489 ...	168 166 ...	3.36 3.53 ...	5.86 6.08 ...	1,828,396 1,983,008 ...	692 683 ...	13.81 14.58 ...	24.10 25.08 ...	600,899 631,026 ...	227 217 ...	4.51 4.64 ...	7.92 7.98 ...	7,388,057 7,906,224 8,728,279	2,872 2,723 2,689	57.31 58.13 58.69

* Includes Central, National, and Mexican Railways.

† Includes Central, National, Mexican, and Sonora Railways.

‡ Includes all Railways appearing on this statement.

\$ Includes Locomotive Expenses.

to Halpam, a small suburban town in the district. They are well kept up and of great convenience to the public by whom they are very largely patronised. This enterprise is about the most flourishing in the country. The returns of expenditure I have been unable to obtain, but I am given to understand that by 9 A.M. each day, the daily expenses are, as a rule, already reimbursed.

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COMMERCIAL INTEREST.

NETHERLANDS.

REPORT ON THE

OPENING OF THE MERWEDE CANAL.

*Issued during the Recess and Presented to both Houses of Parliament
by Command of Her Majesty.*

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NETHERLANDS.

AMSTERDAM.

Consul Robinson to the Marquis of Salisbury.

My Lord, *Amsterdam, August 11, 1892.*

I HAVE the honour to report to your Lordship on the completion of an important link in the communication between Amsterdam and the Rhenish provinces of Germany by the opening of the larger portion of the so-called Merwede Canal, which took place on August 4 last, and which was attended with considerable ceremony, their Majesties the Queen Regent and Queen Wilhelmina having consented to attend and to declare the canal formally open for traffic.

The water communication between the city and the Rhine was, up to the present, of an entirely insufficient character. The so-called Cologne waterway, forming that part of the connection between Amsterdam and Utrecht, is narrow, very crooked, shallow, and impeded by no less than seven locks in the short distance between the two cities, as well as by numerous railway and other bridges. The little River Vecht, forming a part of the waterway, is subject to considerable variation of depth, and in summer and autumn the locks at Utrecht often did not admit vessels drawing more than about 5 feet. The canal communication between Vreeswijk, on the River Leck, and Gorinchem, on the Waal, was also quite unadapted to the present necessities of river transport. Moreover, the whole of this waterway, from Amsterdam to Gorinchem, was more or less under private control, and subject to heavy bridge-money and tolls, so that it is hardly necessary to point out that water communication between Amsterdam and the Rhine was up to now in every respect heavily handicapped as compared with the free water highway between Rotterdam and Dordrecht and Germany. Résumé.

It has cost the city of Amsterdam more than 20 years of uphill work. struggle against all sorts of difficulties and opposing influences to get rid of this state of things, and even now the citizens, though welcoming the great improvement brought about by the new canal, look back with feelings of soreness and bitterness to the impediments which, as they believe, were placed in their path by the local patriotism of sister cities, and by alleged considerations

(1393) A

of national defence, through which the plans cherished by Amsterdam were nullified, and a route imposed on the new canal which disappointed most of those who had worked their hardest to obtain it.

New routes. Amsterdam pressed for a short, cheap, and direct route to the Upper Waal by means of a canal along the River Eem to Amersfoort, thence through the so-called Gelderland Valley to the Grebbe (below Arnhem), and further through the Betuwe to Doodewaard, on the Waal.

Advantages. The advantages promised by this route were, first, the equalisation of the distance with that from Rotterdam; secondly, the avoidance of the shallows in the lower reaches of the Waal and the Leck; thirdly, cheap construction through a large tract of uncultivated country, which could only greatly benefit by the construction of the canal.

Opposition. It was, however, strongly opposed in the Houses of Parliament on various grounds, in which local influences may, perhaps, have played a considerable part; while the military engineers of the country also reported in favour of a route which should debouch in the Leck and Waal beneath, instead of above Utrecht. Finally the present route was adopted, after a hard fight against the wishes of the city chiefly concerned. The original plan contemplated the maintenance of the River Vecht as part of the waterway, but this unfortunate idea was happily abandoned during the construction of the canal, and a new fairly straight cut from Amsterdam to Utrecht and Vreeswijk on the Leck was decided upon and carried out.

Completion of canal to Vreeswijk. The canal, as now completed and opened as far as Vreeswijk, is of greatly improved direction and dimensions.

Breadth and depth. It has a breadth at the bottom of 20 metres ($65\frac{1}{2}$ feet) and a minimum depth of 3.10 metres ($10\frac{1}{4}$ feet). Near the locks and in other places where any accumulation of vessels is to be expected the breadth is considerably greater, reaching to 40 metres ($131\frac{1}{4}$ feet).

Locks and bridges. The locks are 120 metres (394 feet) long, 12 metres (39.4 feet) wide in the gates, and 25 metres (82 feet) wide in the lock itself. The railway bridges, with one exception, are fixed bridges, with a minimum height of 6.50 metres ($21\frac{1}{3}$ feet) from the water-line to the under part of the bridge.

Length of canal. The length of the canal, from the Commercial Quay at Amsterdam to Vreeswijk on the Leck, is $48\frac{1}{2}$ kiloms. ($30\frac{3}{10}$ miles), and the total distance to Gorinchem 71.3 kiloms. ($44\frac{7}{10}$ miles).

Between Amsterdam and Vreeswijk there are three locks: one at the entrance of the canal at Zeeburg on the Zuider Zee, eastward of the city, the second at Utrecht, where the canal enters the so-called "Vaartsche Rhiue," and the third at Vreeswijk, communicating with the River Leck. After crossing the river a lock is passed at Vianen, another just above Gorinchem, and finally the lock communicating with the River Waal.

There are, therefore, in all six locks between Amsterdam and Gorinchem, but for reasons to which I allude below the first

portion of the canal, *i.e.*, that which has just been opened, is practically of the most importance, and will doubtless eventually become the great waterway from Amsterdam to the Rhine.

The River Leck cannot at present be compared with the Waal River Leck. as regards navigatory purposes, principally on account of its shallowness above Vreeswijk, but of late years the conviction has gained ground that this obstacle is far from insurmountable, and that the bed of the Leck can at a comparatively moderate cost be so far deepened as to ensure an average depth of at least 2 metres ($6\frac{1}{2}$ feet) at the lowest stage of the river.

In this case Amsterdam would practically be put on an equal footing with Rotterdam as regards distance from Cologne, and as the new canal is free of tolls, the hindrances hitherto existing to the transit water traffic would be nearly entirely removed. How great these hindrances were may be gathered from the following figures:—

Description.	On New Canal from Amsterdam to Vreeswijk.			On Old Route.		
	Time.		Measurements.	Time.		Measurements.
	Hours.	Metres.	Equivalent in Feet.	Hours.	Metres.	Equivalent in Feet.
Time required to pass through ...	7	...	...	19 00 18	...	...
Length of vessels available ...	...	80	262½	...	50	164
Available draught ...	...	2·60	8½	...	1·50	5
Breadth at bottom ...	...	20	65½	...	13	42½

And last, but not least, the tolls on the old route, on which a small craft of 200 tons paid 35 fl. (2*l.* 18*s.* 6*d.*) on the voyage back and forward, and a vessel of twice that size 50 fl. (4*l.* 3*s.* 4*d.*), whether full or empty. The new route is entirely free.

However great the disappointment of the city of Amsterdam Disappointment of Amsterdam. at not getting what she considered to be her due, and however just her complaint, it cannot be denied that the present improvement is a very great one, and there is but little doubt that every advantage will be taken of it, and that Amsterdam will gradually attain that position in the transit trade which her situation justifies, and from which she has hitherto been shut out as far as inland water traffic is concerned.

Already many enterprises connected with the new canal are Enterprise. spoken of, and doubtless many will be carried out, to the great benefit of the city, and especially of its working population.

It is, of course, a drawback, as compared with the river navigation from Rotterdam, that the canal will in the winter months be sooner closed by ice than the river. On the other hand, the navigation on the canal itself is safer and more regular.

The cost of water carriage has of late years rapidly decreased Water carriage. on the Rhine, in consequence of the improved condition of the river, and owing to the construction of craft of much

larger carrying capacity than formerly. In this respect the new canal is an immense improvement on its predecessor, since it will allow of the employment of craft no less than four times as large as those which could safely pass the older route; now, I need hardly say, nearly completely abandoned.

I have, &c.
(Signed) W. C. ROBINSON.

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NORWAY.
CHRISTIANIA.

Consul-General Michell to the Earl of Rosebery.

My Lord, *Christiania, February 17th, 1893.*
I WAS instructed on November 26 to prepare within three weeks a Report on the Working of the so-called "Gothenburg System" in Norway, and I must, therefore, explain that it has been impossible for me to transmit to your Lordship until this day the accompanying Memorandum.

Among my manifold official occupations I have devoted every available moment to a study of the question, and I found that the more I left behind me preconceived notions in favour of the System, consulted competent and experienced men, and analysed the more recent official publications, the less I found it possible to arrive at a rapid conclusion.

The Memorandum is a result of much anxious and careful toil, and I trust it will be accepted as a conscientious contribution towards the elucidation of a very important question.

I am, &c.
(Signed) T. MICHELL.

Report on the so-called "Gothenburg System" for the Sale of Spirits in Norway.

ABSTRACT of Contents.

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Introduction.

It is reported or alleged :—

1. That the "Gothenburg System," as modified in Norway, is superior to the prototype institution, for while in Norway no private individual or public body is supposed to have a direct interest in the profits derived from the sale of intoxicating liquors, those profits are applied in Sweden to the direct reduction of public burdens, leading easily to the imperilment of "the purity of the motive in controlling the liquor traffic."

2. That to the adoption and extension of that system in Norway is attributable "a very considerable reduction in the home consumption of spirits," and all the beneficial results arising therefrom.

The object of the present memorandum is therefore to inquire into the correctness of those views and statements by the light of facts and figures drawn from Norwegian official sources.

I.—Particulars of the Norwegian System.

Among the appendices to this memorandum is an official report issued by the Royal Statistical Bureau at Christiania, giving a detailed account of the working and the financial transactions of the associations ("Samlagene") for the sale of spirits in Norway between the years 1876 and 1891.

It will be seen that at the end of 1891 the aggregate share capital of those associations was returned at about 33,000*l.*, and their accumulated reserve funds to about double that amount.

Up to the month of October, 1892, permission had been given to 51 towns and hamlets for the establishment of the system, leaving only three small towns unprovided with it.

By the end of 1891 near 43 per cent. of the spirits consumed in Norway had been supplied by the associations, the net profits of which having meanwhile grown from 43,875*l.* in 1881 to 104,409*l.* in 1890.

The distribution of the profits realised in 1890 is shown in detail (Appendix I.). It appears that 18½ per cent. of the aggregate surplus was applied to the promotion of education, apart from contributions towards museums, libraries, and gymnastic establishments, which may more or less be classed among "educational objects."

Grants to asylums for children, &c., absorbed 8 per cent., while 14 per cent. was devoted to such objects of public utility as the improvement of streets, road-making, waterworks, &c., which cannot strictly be included amongst objects that should be "dependent for their existence on the voluntary support of the public alone."

Theatres and other places of amusement benefited to the extent of 6 per cent., but the "total abstinence" movement has

been gradually receiving less support, only 1·4 per cent. of the profits having been devoted in 1890 to an object that may well be considered, at all events theoretically, identical with that of the associations, under their original organisation.

As a matter of fact, the original practice of applying all profits to philanthropic purposes has been more and more departed from during the last 15 years, within which several towns have made contributions, out of gains on the sale of spirits, towards the construction of waterworks, public schools, and even of railways.

In this respect, therefore, there has been a tendency towards assimilation with the parent "Gothenburg system."

With regard to the absolute "purity of motive" that impels the establishment of spirit associations in Norway, there is reason to challenge it.

In the first place, a preferential payment of 5 per cent. on the shares of the associations is an exceedingly strong inducement for promoting the prosperity and extension of the associations. Their 400 kr. (about 22*l*.) shares have never fallen below par, and when money is cheap they fetch as much as 430 kr. in the financial market.

The right reserved to municipalities to buy up at par, within a certain number of years, all the shares of an association, alone prevents the shares from being constantly at a premium.

The best Government securities (loans) and the bonds of the Land Mortgage Bank of Norway do not yield a higher rate of interest than 3 per cent. to 4 per cent. Their value is at the same time liable to be swayed by a variety of circumstances. The financial credit of Governments, as well as that of land mortgage banks, comes and goes, but as drink is likely to go on for ever, to an extent, at least, that cannot fail to give its vendors a benefit of 5 per cent. on invested capital, it is not surprising to find that all the towns in Norway have been eager, if only from that point of view, to avail themselves of the advantages offered by the "Gothenburg system."

But another, not inconsiderable, advantage accrues from holding shares in the associations.

The disposal of the surpluses, after payment of 5 per cent. interest, bestows power, political as well as social, on shareholders guided solely, at their annual meetings, by their own discretion or interest in the allocation of grants. Exceptionally, communal representatives attend to give advice or urge claims at those meetings.

In the smaller towns, in which (almost as in the larger ones) society is already divided into two sharply defined political sections (Conservative and Radical), the associations frequently give rise to the formation of inner "rings," between which the interests of personal friends or of political partizans are fought out, to the further disturbance of harmony and good feeling among the citizens.

Moreover, the municipalities themselves are strongly interested,

not only in the establishment of associations for the sale of spirits, but also in their prosperity.

The larger the surplus at the disposal of an association, the greater are the benefits which the town expects to reap. Roads, parks, waterworks, railways, schools, museums, &c., are priceless benefits in a country relatively so poor, and in which taxation, local or central (already very high in towns), cannot always be resorted to for the attainment of such objects:

The favour with which the municipalities and the Government itself regard the associations in question facilitates the establishment of their dealings on a basis satisfactory to all parties concerned, namely, the shareholders, the municipalities, and the central Government.

Care is, for instance, taken to open wholesale or retail shops for the sale of spirits (and also of ale, in which the associations deal largely) in positions easily accessible to consumers, although, at the same time, the number of such shops or bars is more or less limited.

At Christiania, a couple of months ago, the local association succeeded, by some favourable side wind, in obtaining permission to purchase premises in a quarter of the town in which a couple of large breweries, one of the principal iron and mechanical works, and some other industrial establishments are concentrated.

The premises were being hastily converted into an attractive "gin palace," when the owner of iron works (an alien) protested, and brought before the "plenum" of the municipality the fact that the licence had been procured by the suppression of the strong objections formally recorded against such a providing of temptation to the large number of workmen employed in the immediate vicinity; and many workmen joined in that protest.

The municipality was thereupon compelled to revoke the licence; and the association has been driven to set up its shop in a street where fewer "drams" are likely to be called for.

Another instance of the doubtfulness of "purity of motive" is that the Christiania association keeps a shop close to the Western Railway Station. Complaints have recently been made in the local journals of the facilities which that shop affords to the large number of peasants and working men who travel by that line for obtaining, not only "drams" before starting, but also a good provision of corn brandy for consumption on the journey or at their own homes.

The trains are consequently full of men in various stages of inebriety, to the great inconvenience, to say the least, of other travellers.

On all the above grounds it may boldly be asserted that the original, purely philanthropic, object of the associations (considered collectively) has been gradually departed from, and that the old licensed victualler, often under circumstances of great hardship, has been replaced, throughout the great part of the country, by hundreds of holders of 5 per cent. shares, by administrators politically and otherwise interested in the

distribution of larger and larger surpluses from the sale of spirits, and by municipalities well content to improve and embellish their towns without recourse to direct communal taxation for those purposes.

It has already been stated that the central Government itself is well disposed towards the establishment of associations for the sale of spirits.

Firstly, it is called upon by municipalities to authorise the establishment of such companies under the general law of May 3, 1871; and there being now only three small towns that have not taken advantage of the law, the Government is being moved to grant to the associations a complete monopoly for the sale of spirits (not of ale) by the revocation and expropriation of the rights, under "Royal Warrants," of selling spirits wholesale and retail, still held in the towns throughout the country by about 29 individuals.

At present any merchant in a town can sell spirits in quantities of 40 litres (nearly 9 gallons) and above; and at Christiania there are still many firms or individuals who hold "Royal Warrants" for the sale of spirits, wholesale and retail.

In 1891 about 57 per cent. of the spirits consumed in Norway was sold by such licensed dealers and by distillers, or imported direct by consumers.

A Bill for the establishment of the desired monopoly is being drafted and will possibly be brought before the Storting during its present session.

It is urged by the association and their supporters that the competition of the licensed vendors, backed as they are by the distillers, and well served by travellers who take orders for kegs of "brændevin," and frequently give long credit, interferes with the full attainment of the "philanthropic object" of the Gothenburg system, namely, a reduction of the great evil of drunkenness in this country.

In the second place, from an administrative point of view, the system is considered to be successful because it simplifies excise control and leaves the Government to deal with registered associations instead of with private individuals.

The Government likewise views with favour an unchecked enhancement of the price of spirits as an impediment to larger consumption. Partly owing to the imposition of higher import and excise duties, the price of ordinary corn brandy has already nearly doubled since the institution of associations for its sale.

There certainly appears to be much need of more efficient control on the part of the excise, in regard, more especially, to the widely-spread illicit traffic in spirits. It is now a very general habit among the yeomen farmers to club together in the purchase of a keg or cask of spirits and of cases of beer, to be promptly distributed in the neighbourhood for consumption at home.

This practice is held to be a violation of the law, but it is one that is not easily detected, since the partners in such a transaction are not likely to turn informers.

Moreover, it is an open secret that the restrictions as to the supply of spirits are very generally evaded. Every experienced traveller, native or foreign, knows where to find a dram of "aquavit" when he requires it. Less experienced travellers carry with them a larger supply of spirits than they would require if brandy or whisky were openly available after a long, wet or cold drive, especially in the fall of the year.

At Bergen, where the association is paramount, a traveller staying at an hotel is compelled to send for an entire bottle of whisky, gin, or cognac when he wishes to have a glass of "toddy" or to drink, sometimes under medical advice, sound spirits mixed with water, instead of expensive French wine or the ale which the hotels are allowed to supply. It is the same at Bergen in respect of a glass of liqueur after coffee, and it is only natural that when the traveller and his party are unable to drain an entire bottle they should carry what remains away with them.

But the greater the sales the more money the associations have to deal with.

It seems, as regards the farmers combining to purchase spirits wholesale, to be immaterial whether the supply is obtained from an association, from a licensed dealer, or direct from a distillery, and the granting of an absolute monopoly to the association would scarcely check the evil to any considerable extent.

Sales exclusively for cash may, however, somewhat interfere with the present system of purchasing large quantities of spirits for distribution among friends and neighbours.

The official and other advocates of the Norwegian "Göthenburg system" maintain that "the purity of the motives" of the associations is secured by the employment at their shops of men who receive a fixed wage, irrespective of the success or otherwise of their operations, and by the fact that the same men are bound to maintain order and cleanliness at the places of sale, and to refuse drink to idle and loose characters, to persons already intoxicated, and to children.

These would, however, appear to be measures that could be equally well enforced on the individual publican as on a chartered association by an efficient police under general regulations.

The present greater vigilance of the police is attested by official figures given in Appendix I.

Between 1889 and 1891 the number of persons taken up by the police for drunkenness, "partly in connection with disorderly conduct in the streets," was as follows in the three principal Norwegian towns:—

Town.	Number.			
	1889.	1890.	1891.	Population in 1891.
Christiania	7,554	10,096	11,602	(About) 150,000
Bergen	729	1,122	1,047	54,000
Trondhjem	533	437	563	25,000

Police activity in this respect appears to have corresponded very closely in ratio with the returns made by the associations as to the number of persons who have been refused drink at their shops :—

Town.	Number.		
	1889.	1890.	1891.
Christiania	43,951	53,374	54,898
Bergen	15,426	16,061	15,726
Trondhjem	2,973	4,418	4,138

II.—The Consumption of Spirits in Norway.

It has constantly been asserted that the introduction of the "Gothenburg system" into this country has been followed by a diminution, represented as considerable, in the rate of consumption of spirits per head of the population.

In the first place, inquiry must be made into the existence and extent of such diminution, and in the second to study and estimate the influence exercised in that direction by the associations.

1. Table I. in the appendix certainly establishes the fact that in 1876, when the associations accounted for only 8·3 per cent. of the total consumption of spirits in Norway, the rate of consumption per head of the population was 6·77 litres,* and that

* According to the standard work of Dr. O. J. Broch ("Le Royaume de Norvège, &c.," Christiania, 1878) the previous rates per head were as follows :—

Years.						Average.
						Litres.
1851-55	..	..	..	..	..	6·3
1856-60	..	..	..	..	..	5·5
1861-65	..	..	..	..	..	4·4
1866-70	..	..	..	..	..	4·8
1871-73	..	..	..	..	..	5·2
1874-75	..	..	..	..	..	6·7

the rate fell rapidly to 3.28 litres in 1879, when the associations provided $24\frac{1}{2}$ per cent. of the aggregate consumption.

In the following year there was a rise to 3.90 litres per head, followed in 1881 by a fall to 3.02 litres, the lowest rate indicated in the table being 2.85 litres (in 1887).

Since 1888 an upward movement in the rate of consumption has manifested itself, resulting, in 1891, in a rise to 3.66 litres.*

It is, therefore, evident that the rate of consumption per head has fluctuated both before and after the introduction of the "Gothenburg system," and that for the last three years it shows a not inconsiderable increase, especially in 1891, when the consumption per head was 17.3 per cent. greater than in 1890.

The only notable decrease in the rate of the consumption of spirits in Norway since the establishment of the associations occurred between the quinquennial periods 1876-80 and 1881-85, the average rate between those periods having fallen by $30\frac{1}{2}$ per cent.

It is for this sudden fall that those interested in the associations have been prone to take credit.

But it is essential to inquire under the next head to what extent that assumption is correct.

2. The influence exercised by the associations in the diminution of the consumption of spirits in Norway.

The table in Appendix II, compiled by the writer of the present memorandum from figures given in Norwegian official publications, exhibits the significant fact that the remarkable falling-off in the consumption of spirits between 1876-80 and 1881-85 was accompanied by an almost corresponding decrease in the use of tobacco, which is mostly chewed by the bulk of the rural and labouring classes in Norway.

And yet the associations do not supply that form of intoxicant, which can be purchased freely, at a low price, throughout the country.

The subsequent fluctuations in the consumption of tobacco are, to some extent, in sympathy with the rise and fall in the consumption of spirits, notwithstanding that the duties levied on tobacco since 1875 have been increased to a greater extent than the customs duties on spirits, of which the rates naturally correspond with alterations in the excise dues.

An explanation of the great fall that took place between 1876-80 and 1881-85 in the consumption both of spirits and tobacco is to be found mainly in the economic condition of the bulk of the population, *i.e.*, of the agricultural masses, during those periods.

Towards the end of the Seventies the marked changes in the mode of living of those classes, gradually brought about by education, wider inter-communication (resulting from the construction of roads, railways, and the extension of internal

* The Norwegian official estimate (3.68 litres in 1891) is based on the actual population, while the rates shown in Table I. of the Appendices has been calculated on the registered population.

steamship navigation), and to some extent by the growing contact with travellers, native and foreign, had in the period after 1880 almost entirely broken up the old Arcadian life of the "bonde" (peasant proprietor), so highly admired by Mr. S. Laing during his travels between 1834 and 1836.

In those halcyon days almost everything consumed or used on a farm was produced on it, the communal taxes were low, and indebtedness under mortgages comparatively small. Consequently, the spare cash of the "bonde" was more or less freely available for the purchase of drink and tobacco, then also much cheaper.

In this connection it is necessary to explain that under the old and still existing law of the country, sons and daughters are entitled to an equal share in the father's estate, the oldest member of the family having the right to buy out his co-heirs. These arrangements have compelled recourse to loans, originally from the Bank of Norway, founded in 1816; next from the Land Mortgage Bank, established in 1852, to assist landowners in the extinction of private mortgages and in the consolidation of their old debts, and at last from the more modern savings banks, indebtedness having meanwhile also increased under second mortgages or bonds to lawyers (by whom the country is overrun), and to the storekeepers, from whom credit was obtained in the purchase of coffee, sugar, and (increasingly) of various articles of modern necessity.

The impoverishment of the peasant masses in these circumstances was attested by the quinquennial reports of the prefects (Governors of the provinces) for the years between 1876 and 1880. Mortgages, distraints, sales, &c., had largely increased. Credit had been misused on a large scale, and its facility had induced the population to live beyond its means, while the indebtedness, except in relatively few cases, had not been incurred for productive purposes.

The communal taxation for local purposes had been growing from 1853, when it amounted to 167,000*l.* In 1880 it had reached the sum of 497,000*l.*, the largest item in the expenditure being "poor relief," which represented very little less than half the total annual liabilities of the rural, communal administration.

In 1880 and 1881 the number of persons in receipt of relief from the rural communities was a little over 7 per cent. of the population,* while in 1881 the corresponding numbers were 3 per cent. in England and Wales, 2·6 per cent. in Scotland, and (exceptionally) 11 per cent. in Ireland.†

Simultaneously, the rate of emigration from Norway (between 1881 and 1883) ranged from 1·3 and 1·5 of the population, almost exactly as in Ireland.

On all these grounds it may safely be concluded that the great

* Including the urban population, the number of persons in receipt of relief amounted to 8 per cent.

† In 1879 it was 7½ per cent., and in 1883 about 8 per cent. of the population.

diminution in the Drink Bill, in 1881-85, credited to the associations, was almost entirely the outcome of the acute economic crisis through which the bulk of the consumers of spirits were then passing.

The subsequent fall and rise in the rate of consumption accord with the earnings of the people, especially in towns, to which the rural population is resorting more and more, and where wages have for some time been on the rise, as a result of the development of industries and of contingent labour combinations and strikes.

The Drink Bill of Norway has, in fact, oscillated, as in Great Britain, with the earnings of the lower classes, irrespective of any perceptible philanthropic influence on the part of the associations for the sale of spirits.

While official statistics show but little diminution in the rate of the consumption of spirits in Norway since the period when the great reduction in that rate occurred (1851-85); and, on the other hand, that the rate has for the last three years been growing, it cannot be denied that outwardly, and especially in towns, there is a decrease of cases of gross inebriety.

This can well be accounted for by the greater vigilance of the police and the increase of its strength and efficiency. The penalties for public drunkenness have been made more severe, and where the shops or bars of the associations are well conducted a smaller number than formerly of besotted people are to be found in the streets of a town.

Dram drinking appears to be on the decrease where "bars" are not conveniently available, but chiefly because drinkers of drams have, with their native sagacity as to the value of money, discovered that it is more profitable to buy spirits by the bottle, from which a greater number of drams can be extracted at home, at a smaller cost per dram.

Out of the towns, however, the continued excessive use of spirits is often painfully apparent.

Along high roads leading out of the larger towns are to be seen, especially on market days, "peasant proprietors" and cottiers returning to their homes, in carts or sledges, well supplied with bottles of spirits from the association shops, or from the corresponding establishments of licensed dealers. Many of them are more or less inebriate.

A similar picture can be drawn of the same classes when travelling by rail or steamer.

Soldiers going to camp, or returning from their summer exercises, are generally of dangerous proximity, especially on board steamers. Bottles of "brændevin," or beer, are freely passed amongst them; and, as a rule, the conscripts are to be found in a condition of intoxication more or less brutal.

It has already been stated that the habit has been growing of making a good provision of spirits or beer at home. Human nature, under identical circumstances, being the same in most countries, it is no invidious reflection on the Norwegian peasant

proprietor or cottier to mention that the Scottish adage, "Wha could sleep with a bottle of whusky in the hus," is freely acted upon in Norway also.

If there be any diminution in the open bestial abuse of spirits in Norway, it would be more fair to attribute a considerable part of it to the influence of education, which surely brings in its train refinement in mode of life and the cultivation of feelings of self-respect.

To give to the associations the entire or a good part of the credit for a decrease in visible drunkenness would indeed be to deny, not only the results of education and of more practical religious training, but also the influence of the total abstinence societies that exist throughout the country.

A table among the appendices shows that, from one total abstinence society in 1859, their number had grown to 853 in 1891, and their members respectively from 30 to 100,000 (including women and children), or to about 5 per cent. of the population.

It is only right also to acknowledge the work done in the same direction during the last few years by the so-called "Salvation Army." It has certainly rescued in Norway many units from the condition of confirmed drunkards, while even its religious teaching, conveyed in a form grotesque and objectionable to the cultivated mind, has not been without effect on the ruder and poorer classes.

Reference must further be made to the growing activity of Norwegian ladies and gentlemen who devote themselves to the task of rescuing the lower classes from drunken debasement.

It is probable that a great stimulus in that direction would be given by the abolition of the time-honoured fashion of drinking healths, even at the smallest private dinner parties, and by limiting the varieties (up to 15) of wine in which mutual challenges are given at meals.

As the polished mahogany table and the bottles of old port have, almost as a rule, disappeared in Great Britain, so in Norway it is to be expected a similar example will soon be given to other classes by the introduction of corresponding innovations.

It is, however, right to say that cases of actual drunkenness, and especially at table, are almost unknown among the upper and the educated middle classes.

In conclusion, it appears desirable to add a few reflections as to the quality of the spirits supplied by the associations, and to the increasing habit of drinking ether (as in Ireland) when spirits of another kind are not easily procurable.

In the earlier days of the associations in Norway they took credit for the supply of superior qualities of spirits at a moderate price.

Apart from a general disapproval of the official sanction given to the use of intoxicating liquors by the licensing of associations for that purpose, the Norwegian total abstinence societies saw a further danger to their praiseworthy propaganda in the supply of

spirits which, while inebriating, did not punish the incontinent by poisoning their own constitutions and those of succeeding generations.

In this respect the objection to any improvement in the quality of drink is in sympathy with that of so-called purists who, in Norway as well as in England, oppose everything in the direction of a Contagious Diseases (not Animal) Act; the grounds being the same, namely, that present and future generations should be made to feel, by physical suffering, the penalties of incontinence.

But for some time past, the total abstainers in Norway have had less apprehension on that score. It is an admitted fact that, except in the larger towns, the native spirits supplied have been deteriorating in quality, while those imported, such as French cognac and Scotch whiskey, are generally so inferior that only the ignorant and the helpless will purchase them from the stores of the associations.

Norway is, in fact, flooded with whiskey that is most frequently raw or straight from the vat. The difficulty of procuring from the associations innocuous whisky or genuine cognac at prices suited to a consumer of moderate means, promotes, as already stated, their direct importation by individuals, in combination, frequently with friends.

Such importations have for some time been on the increase, as a consequence of the associations following the practice of the unscrupulous licensed victualler, namely, that of supplying an inferior article at a high price.

When the associations obtain a monopoly of the sale of spirits in Norway this evil will, of course, be increased; and the Government will, as in respect of victuallers, be compelled to establish a wide and strict control over the quality of the wares forced on the public by associations interested, as already shown, in making the largest possible gains out of their traffic.

Concurrently, the strength of the ale supplied by breweries and partly sold at the association shops, and of which the consumption is likewise increasing,* is acknowledged to be on the increase; for weak beer cannot, with satisfactory financial results, expect to take the place of strong spirits.

It is doubtful, in this respect, whether the consumption of potent ale is not more injurious to the working man than the use of spirits, in moderation. The alcoholism produced by the consumption of beer in large quantities is more stupefying and durable in its effects than that which proceeds from the drinking of drams, especially in a cold climate. In Russia an experienced housekeeper prefers to engage or retain a manservant who indulges in drams of "vodka," or even gives way to a limited periodical "zapoi" (state of inebriety), rather than one who is in a constant state of "fuddle" from an incessant, inordinate consumption of ale.

* See Appendix IV.

There is also another intoxicant of which the growing abuse is sometimes mentioned in the Norwegian press, namely ether, well-known throughout the country as "naphtha."

The difficulty of procuring "brändeivin" in small quantities is being steadily surmounted by the facility with which ether can be purchased from chemists. Its use on a considerable scale can be easily detected at fairs and other large gatherings of the rural classes, nor is it little known in the towns among workmen and servants.

The abuse of this intoxicant appears to be controlled only by the fear of the detection which its pungent odour renders easy.

Indeed, if "naphtha" were included in the official returns of the consumption of spirits, the rate of consumption per head, as regards spirits of an ardent character, would certainly appear greater than available statistics now show.

APPENDICES.

- I. Report on the Gothenburg System in Norway for 1891, published by the Central Statistical Bureau, Christiania.
- II. Table comparing the consumption of Spirits with that of Tobacco in Norway.
- III. Return of Licences granted in Norwegian Towns for the Sale of Ale, Wine, Mead, and Cider in 1891.
- IV. Norwegian Official Estimate of the consumption of Ale in Norway.
- V. The Norwegian Total Abstinence Societies in Norway.

APPENDIX I.

*Report of the Statistical Bureau, Christiania, Condensed and
Translated by T. Michell.*

Up to the month of October, 1892, permission was given (under the law of May 3, 1871) for the establishment of such associations in 51 towns, incorporated or otherwise.

At the end of 1891 their aggregate share capital amounted to about 33,000*l.* and their aggregate reserve fund to about double that amount.

There are now only three small towns (with a minimum population of 800) and a special communal administration in which an association for the sale of spirits does not exist.

The following table illustrates the activity of those associations between 1876 and 1891, the consumption of spirits in Norway being calculated partly on the basis of production of import and export, partly on the sales effected by the associations. As regards the total consumption, the figures refer to a strength of 50 per cent., whereas in the case of sales by the associations they have been entered as returned by the latter, without indication of the percentage of proof. Returns obtained, however, in 1888 from 14 of the larger associations show that the average strength of the spirits sold by them was 44·22 per cent.

Nevertheless, the somewhat higher percentage adopted in

calculating the total consumption gives an approximately accurate result, for it partly counterbalances the deduction, which would otherwise have to be made, for the quantity of alcohol used for industrial purposes.

It is probable that the sales by the associations in relation to the total consumption of spirits in the Kingdom are slightly over-stated in the table, but in any case the estimate made of the total consumption of spirits is not thereby affected.

Table 1.—HOME Consumption of Spirits in Norway during the Years 1876–91.

Year.	Population Registered, January 1.*	Total Estimated Home Consumption.		Of which Sold by the Association.	Consumption per Head of Population.	
		Litres.†	Imperial Gallons.‡		Litres.	Quarts.
				Per cent.		
1876	1,813,000	12,268,000	2,699,000	8·3	6·77	5·95
1877	1,834,000	11,067,000	2,435,000	14·8	6·03	5·30
1878	1,860,000	8,472,000	1,642,000	22·2	4·55	3·53
1879	1,886,000	6,192,000	1,362,000	24·5	3·28	2·90
1880	1,912,000	7,462,000	1,642,000	21·0	3·90	3·43
1881	1,921,000	5,803,000	1,277,000	30·1	3·02	2·66
1882	1,921,000	7,240,000	1,591,000	25·5	3·76	3·31
1883	1,916,000	6,357,000	1,399,000	34·1	3·32	2·90
1884	1,922,000	6,692,000	1,472,000	34·1	3·42	3·06
1885	1,938,000	6,840,000	1,505,000	32·1	3·52	3·11
1886	1,950,000	5,905,000	1,299,000	41·4	3·10	2·70
1887	1,954,000	5,569,000	1,225,000	43·2	2·85	2·51
1888	1,979,000	6,026,000	1,326,000	40·1	3·05	2·67
1889	1,980,000	6,338,000	1,394,000	41·8	3·20	2·81
1890	1,985,000	6,208,000	1,361,000	49·1	3·12	2·74
1891	2,001,000	7,328,000	1,613,000	42·9	3·66	3·22

* This column has been filled from other official publications of the Central Statistical Bureau, Christiania. The registered population is about 2½ per cent. in excess of the actual population.

† 50 per cent. below proof.

‡ The litres have been converted at the rate of 4,500 litres equal to 990 imperial gallons.

It would, however, be misleading to form from the returns given above, of the turnover of the associations, an opinion as to the consumption of spirits in any single year, without taking as a basis the aggregate of the sales. It is necessary to consider the relative number of the association sales by grouping the latter according to the period during which they have been in activity under unaltered circumstances.

Accordingly, the following table exhibits the turnover of four different groups of associations during the years 1876–91:—

Table 2.—SALES by Associations.

Year.				Sales in Litres by—			
				Fifteen Associations Established previous to 1876.	Fourteen Associations Established since 1878.	Ten Associations Established since 1881.	Eight Associations Established since 1887.
1876	..	..	..	880,373	..	..	..
1877	..	..	..	831,025	..	..	..
1878	..	..	..	883,728	1,087,944	..	..
1879	..	..	..	581,413	841,623	..	..
1880	..	..	..	563,490	809,614	..	..
1881	..	..	..	580,140	818,409	292,300	..
1882	..	..	..	600,649	853,421	290,568	..
1883	..	..	..	615,938	856,735	308,696	..
1884	..	..	..	632,989	880,869	317,469	..
1885	..	..	..	584,421	823,330	290,885	..
1886	..	..	..	552,718	796,388	271,048	..
1887	..	..	..	531,288	769,432	252,550	325,040
1888	..	..	..	523,770	756,146	253,768	303,665
1889	..	..	..	560,013	810,340	279,951	306,387
1890	..	..	..	639,733	883,593	285,327	342,430
1891	..	..	..	651,000	936,998	303,467	353,374

If we study in the first of the foregoing tables the relative figures of the two last years, it will be seen that both the total consumption within the kingdom and the sale of the associations increased severally by 18 per cent. and a little over 3 per cent.

In the last table a greater or a smaller increase is equally observable in all the groups of associations. It is probable that the total consumption in 1890 was somewhat greater than estimated, for it has not been possible to include in the calculation a possible diminution of the stock of spirits in hand.

In any case, it is evident that both the estimate of the total consumption and the returns of the sales of the associations show that the consumption of spirits in Norway reached a minimum in 1887, but that subsequently it has exhibited a remarkable increase.*

While Table 1 shows that in 1891 the proportion of the associations' sales to the total consumption was 42·9 per cent., against 49·1 per cent. in 1890, a deduction of the sales made by six new associations gives the following results:—

* These two lines are in italics in the original report.

Year.					Total Consumption.
					Per Cent.
1886	..	..	..	..	35·7
1887	..	..	..	..	36·9
1888	..	..	..	..	33·8
1889	..	..	..	..	37·5
1890	..	..	..	..	41·9
1891	..	..	..	..	42·9

According to the returns given by the associations the sales in quantities of 40 litres (8 gallons 3 quarts) and above that quantity amounted to 3·6 per cent. of the total sales.

In the years immediately preceding that proportion was as follows:—

Year.					Per Cent.
1887	..	..	..	..	5·1
1888	..	..	..	..	4·5
1889	..	..	..	..	4·1
1890	..	..	..	..	4·0

	Amount.
	£
The gross receipts of the associations in 1891 amounted to ..	185,096
And their expenses to	100,979
Leaving a net gain (including transfers to reserve funds and depreciation of real property, stock, and fixtures) of ..	84,117

In 1890 the corresponding profit was 76,924*l.*, or considerably less than in 1890.

	Amount.
	£
Analysing the expenses of the associations in 1891 (100,979 <i>l.</i>) we find the following items—	
Communal taxes	6,346
Excise on spirits (13½ öre per litre, or 9 <i>d.</i> per gallon) ..	22,533
Beer and wine licenses	2,951
Total	31,830*

* This represents 31·5 per cent. of the total expenses. An almost similar proportion in this matter has existed since 1887.

A comparison of the aggregate receipts and expenditure of the associations with the quantity of spirits fetched from them in 1891 shows an average gross receipt of 1 kroner 6 öre per litre (5*s.* 10*d.* per gallon) and an average expenditure of 58 öre per hectolitre (3*s.* 2*d.* per gallon), consequently a net balance of 48 öre per hectolitre (or 2*s.* 7*d.* per gallon).

(1468)

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In 1890 those figures were relatively 1 kroner 3 öre per litre (5s. 8d. per gallon), 57 öre per litre (3s. 1d. per gallon), and 46 öre per litre (2s. 6d. per gallon).

	Amount.	
	£	£
As already shown, the aggregate balance of profit amounted in 1891 to	..	.84,117
Out of which was—		
1. Added to reserve fund.. ..	293	..
2. Written off real property and fittings	1,913	..
		2,206
Total	..	81,911

The remainder of the surplus has either already been applied to purposes of public utility or will later be so applied, the sums destined to be thus appropriated being either added to the funds in view or remaining otherwise unemployed (at the end of the year).

Between 1887 and 1890 the corresponding figures were as follows:—

Number.	Description.	1887.	1888.	1889.	1890.
		£	£	£	£
1	Added to reserve funds	5,856	2,063	1,155	976
2	Written off real property and fittings	1,968	3,212	1,935	2,421
3	Applied to or destined for objects of public utility	38,847	48,649	60,250	73,527
	Total	46,671	53,924	63,340	76,924

If to the surplus shown above for 1891 (81,911l.) be added the sum of 31,830l., which, as already stated, was expended by the associations in communal taxes, excise on spirits, and beer and wine licences, during the same year, the sum derived by towns from the gross receipts of the associations amounted altogether to 113,741l.

With a corresponding addition in respect of the years between 1881 and 1891, the figures appear as follows:—

Year.						Amount.
						£
1881..	..	..	..	..	..	43,875
1882..	..	..	..	..	..	46,236
1883..	..	..	..	..	..	52,670
1884..	..	..	..	..	..	59,334
1885..	..	..	..	..	..	62,226
1886..	..	..	..	..	..	65,417
1887..	..	..	..	..	..	67,913
1888..	..	..	..	..	..	77,286
1889..	..	..	..	..	..	90,378
1890..	..	..	..	..	..	104,409

There has thus been a considerable annual increase in the benefits received by towns from the sale of spirits (and partly of beer and wine) by the associations.

The average benefit between 1881 and 1891 has been 71,230*l.* per annum.

No complete account of the application of the surplus at the disposal of the associations in 1891 is so far available.

It is, therefore, only possible to give the following return of the appropriation of this aggregate surplus in 1890.

As already stated, the surplus in 1890 amounted to 73,527*l.*, to which has to be added the unappropriated balance of previous years, namely, 1,823*l.*, making a total of 75,350*l.*

This amount was applied as follows by the associations then established :—

Number.	Description.	Amount.
		£
1	Home mission	519
2	Church buildings	964
3	Other church or religious objects	700
4	Museums, collections, and other scientific objects	2,944
5	Libraries, reading rooms, and reading societies	1,167
6	Schools (National), buildings	4,843
	Libraries and collections	169
	Other grants	503
7	Schools, middle and higher buildings	1,197
	Libraries and collections	109
	Other grants	1,238
8	Evening and Sunday schools, schools for seamen, technical schools, workmen's academy, &c.	2,543
9	Schools of domestic industry, housekeeping, &c.	2,843
10	Grants to artisans, &c.	147
11	Asylum for children, &c.	5,819
12	Magdalene asylum	75
13	Young men's association	648
14	Total abstainers' association and abstinence movement	1,007
15	Labourers' homes, &c.	947
16	Seamen's homes, &c.	164
17	Seamen's, artisans, and other societies	856
18	Public hospitals	3,567
19	Sisters of charity and hospital nurses	922
20	Sick and aid societies	856
21	Home for the poor	862
22	Support, care, and alimentation of the poor	2,255
23	Rifle association	87
24	Gymnastic association	631
25	Bathing houses' association	4,277
26	Drawing schools	631
27	Theatres, festive halls, and places of amusement	4,477
28	Music, singing	1,844
29	Other artistic objects	1,260
30	Contributions towards railway construction	1,694
31	Improvement of streets and road-making	5,623
32	Other contributions towards means of communication	2,385
33	Lighting of streets	282
34	Waterworks, laying down waterpipes, house-sewage system	4,891
35	Fire station	296
36	Public parks, tree plantage, &c.	3,768
37	Medical service	113
38	Police	157
39	At disposal of communes for purposes not further specified	882
40	Other purposes	1,464
41	Added to share capital or unapplied	2,924
	Total	75,350

It will be seen that, among the purposes to which the association surpluses have been applied, schools occupy the first place. If technical, domestic industry, and other similar institutions be included a sum equal to $18\frac{1}{2}$ per cent. of the aggregate surplus was appropriated to educational purposes, apart even from contributions to museums and collections, libraries, and gymnastic establishments, of which some may well be classed among educational objects.

The items next in importance are—

Description.	Per Cent.
Asylums for children, &c.	8
Improvements of streets, road-making ..	7½
Waterworks, &c.	6½
Theatres, &c.	6

It will be seen from the foregoing statement that comparatively large sums are applied to the support of bathing-houses, public parks, and hospitals.

It is interesting to notice the contributions that have been made by the associations for direct promotion of the total abstinence movement :—

Year.	Per Cent.
1882.. .. .	4.4
1883.. .. .	3.1
1884.. .. .	3.2
1885.. .. .	3.0
1886.. .. .	2.6
1887.. .. .	2.8
1888.. .. .	2.2
1889.. .. .	1.7
1890 (1,057½).. .. .	1.4

For the first time statistics have been supplied by a few of the towns in respect of intoxicated persons who have been sent away from the shops of the associations or of minors to whom supplies were refused at such shops :—

Towns.	Number.		
	1889.	1890.	1891.
Fredrikstad	(?)	9,655	9,835
Drobak	(?)	(?)	648
Christiania	43,934	53,374	64,898
Lillehammer	1,973	2,206	2,068
Tönsberg	1,946	2,732	3,511
Skien	2,475	2,627	2,539
Arendal	3,787	4,440	4,142
Bergen	15,426	16,061	15,726
Trondhjem	2,973	4,418	4,138
Stenkjær	530	480	445
Tromsø	1,219	709	577

The reports of some of the police offices in Norway render the following figures available with regard to the number of per-

sons arrested for drunkenness, partly in connection with disorderly conduct in streets:—

Towns.	Number.		
	1889.	1890.	1891.
Fredrikstad	266	281	349
Christiania	7,554	10,096	11,602
Tönsberg	262	326	424
Bergen	729	1,122	1,047
Trondhjem	533	487	563
Stenkjær	27	36	23
Tromsø	82	67	123

APPENDIX II.

TABLE Comparing Consumption of Spirits and Tobacco in Norway.*

Years.	Home Consumption per Head of the Population.			
	Spirits.†		Tobacco.‡	
	Quantity.	Increase or Decrease.	Quantity.	Increase or Decrease.
	Litres.	Per cent.	Kilogram.	Per cent.
1876-1880, average ..	4.91	..	1.20	..
1881-1885 ..	3.41	— 30.5	0.85	— 29.2
1886-1890 ..	3.10	— 9.0	0.81	— 4.7
1886 ..	3.10	+ 0.0	0.85	+ 4.9
1887 ..	2.85	— 8.1	0.85	+ 0.0
1888 ..	3.05	+ 7.0	0.79	— 7.1
1889 ..	3.20	+ 4.9	0.78	— 1.3
1890 ..	3.12	— 2.5	0.80	+ 2.6
1891 ..	3.66	+ 17.3	0.85	+ 6.2

* Compiled from the official publications of the Statistical Bureau, Christiania, by T. M.

† Duty on spirits (in the cask) at 50 per cent. below proof:—

Years.	Per Kilogram.	Per Litre.	Remarks.
	Öre.	Öre.	
1876-77.. ..	64	51.8	Between 1876-80 increase from 51.8 öre per litre to 72.9 öre per litre, or 40.7 per cent.
1877-78.. ..	77	62.3	
1879	90	72.9	
1879-80.. ..	90	72.9	
1888	..	85.1	
1892	..	85.1	

‡ Duty on tobacco (in the leaf):—

Years.	Per Lb.	Per Kilogram.	Remarks.
	Öre.	Öre.	
1875	33.8	66½	Between 1875 and 1879 increase from 66½ öre per kilo., to 100 öre per kilo., or 49 per cent.
1877-78.. ..	40.0	80	
1878-79.. ..	50.0	100	
1880	62.1	125	
1888	57.1	175	
1892	87.1	175	

APPENDIX III.

RETURN of the Number of Licences Granted in Norwegian Towns and Hamlets in 1891 for the Sale of Ale, Wine, Mead, and Cider.

Towns.	Registered Population in 1891.*	Cost of Licence.	Number of Licences.	
			Total.	Of which, to Associations.
		£		
Christiania	150,444	14	217	14
Bergen	53,686	19	62	4
Trondhjem	25,051	22	35	7
Skien	8,954	22	25	2
Drammen	20,684	22	22	1
Laurvig	11,269	15	20	4
Fredrikstad	12,463	22	20	18
Stavanger	23,930	22	19	15
Halesund	8,415	22	16	3
Kongsberg	5,245	9	15	2
Kongsvinger	1,300	7	11	1
Tönsberg	7,247	22	10	9
Christiansand, S. .. .	12,831	17	8	7
Holmestrand	2,360	14	8	7
Horten	6,815	22	8	3
Fredrikshald	11,219	22	7	6
Moss	8,047	22	6	4
Hamar	4,200	22	6	1
Lillehammer	1,830	11	6	1
Molde	1,630	8	5	1
Christiansund, N. .. .	10,386	22	5	2
Tromsø	6,004	22	4	3
Thirty-seven other towns and hamlets	78,315	average 18 $\frac{1}{2}$.	82	53
Grand total	472,325	..	617	168

* The actual population in towns, on January 1, 1891, was 2½ per cent. less than the registered population.

APPENDIX IV.

OFFICIAL Estimate of the Consumption of Ale in Norway.*

Year.	Per Head of the Population.	
	Litres.	Imp. Gallons.
		Galls. Qts.
1883	23·1	5 0
1884	23·9	5 1
1885	20·1	4 1
1886	17·3	3 3
1887	18·8	4 0
1888	19·2	4 1
1889	23·9	5 1
1890	25·6	5 2
1891	28·8	6 1
1892	26·0	5 3

* Communicated by the Finance Department. The litres have been converted as previously.—T. M.

APPENDIX V.

THE Norwegian Total Abstinence Societies,* 1859-91.

Year.	Number of Societies.	Number of Members.
1859	1	30
1864	11	1,700
1870	18	1,900
1877	67	9,000
1883	328	35,000
1885	579	60,000
1889	801	95,000†
1890	843	98,000‡
1891	853	100,000§

* Communicated by the Central Association at Christiania.

† Including 34,000 women and 6,000 children.

‡ " 41,300 " 15,000 "

§ " 43,000 " 15,000 "

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NORWAY.

CHRISTIANIA.

Consul-General Michell to the Earl of Rosebery.

My Lord,

Christiania, March 3, 1893.

At a meeting of the Storting on the 24 ult., Mr. Aarestad Member for the Prefecture of Jarlsberg and Laurvik, which includes the richest agricultural district in Norway, asked the Government whether they intended to take any special measures for improving the condition of the agricultural classes?

His speech on that occasion, and the debates that came to a close only on the 1st inst., supplied interesting and important information with regard to the present economic condition of the so-called peasant proprietors in this country.

Mr. Aarestad maintained that the landowners or farmers were steadily falling deeper and deeper into debt. The taxes were rising, while agricultural produce had a tendency to fall in price. In these circumstances, the agricultural classes had urged economy in State expenditure. But other measures were requisite. The railway rates for the carriage of agricultural produce should be reduced. While, also, millions of kroner were voted for the support of the higher schools, relatively little was contributed towards the practical teaching of farmers, who were, therefore, becoming less and less able to keep pace with the development of agriculture elsewhere.

While the rural districts contributed the greater part of the surplus acquired from the sale of spirits by towns, which applied them to their own benefit, a sum several times smaller in amount was granted by the Storting for the promotion of agriculture.

Owing to the system on which excise dues are now levied on malt, breweries were compelled to use foreign corn, and consequently it is the farmers who raise corn at home that have eventually to pay the excise dues on malt, while they are at the same time excluded from the corn market.

The necessities of life were becoming cheaper, while the wages of labour were rising, to the prejudice of the interests of the farmers.

"Those who now in reality own the soil of Norway are the Bank of Norway, the Land Mortgage Bank, the Savings Banks, and Merchants (traders) in towns. The mortgage debt on Norwegian agriculture has been increasing as follows:—

Year.					Amount.	
					From—	To—
					£	£
In 1865	..	..	..	..	9,000,000	10,000,000
1874	..	..	..	..	11,200,000	..
1880	..	..	..	..	16,700,000	..
1887	..	..	..	..	19,400,000	22,200,000

"At present, that indebtedness amounts to not less than 27,800,000*l.*, and if the debts to the Savings Banks and to Merchants be added, the grand total may be estimated at 36,000,000*l.* to 39,000,000*l.*

"At the same time, the estimated official value of the land, houses, and forests of Norway is 40,000,000*l.*, to which can be added 7,200,000*l.* for the total stock of cattle."

The honourable member estimated that the Norwegian "*bonde*" (peasant proprietor) owned in reality only about one-sixteenth of the value of the land, houses, and forests in this country.

Further that the interest on the land debt (at 4 per cent.) now amounts to one-sixth of the total yield of agriculture in Norway (about 11,000,000*l.*).

On all these grounds he declared the condition to be desperate, and that unless serious steps be taken the landowners (or farmers) will be entirely ruined.

Among other suggestions, Mr. Aarestad thought the State should introduce measures "to facilitate the liquidation of the agricultural debt," and especially a loan free from "instalment payments," for the purpose of paying off old mortgages.

But first of all, Mr. Aarestad urged, it was necessary to appoint a Royal Commission of Specialists to enquire into the present condition of the agricultural classes and to propose such measures as may be necessary for their relief.

In his replies, the Minister for the Home Department threw doubt on the accuracy of the statistics brought forward by Mr. Aarestad, and thought they were somewhat exaggerated. The Minister urged that the parliamentary grants for the advancement of agriculture had been increased from about 3,000*l.* in 1885 to nearly 9,000*l.* in 1893. Simultaneously, the joint contributions for the same object of the State and the Prefectures had grown from 3,850*l.* to 6,000*l.*

A committee, he said, had now under consideration the question of the excise dues on malt, and he thought that the surpluses of the associations for the sale of spirits should be applied to the

general benefit of the country, namely, towards providing labourers with support in old age.

The Government hoped to be able to lay before the present Storting a Bill to cheapen the acquisition of land by the labouring classes.

As regards the increasing indebtedness of the landowners or farmers, the Home Minister pointed out that the value of land has been increasing (being about 3,600,000*l.* in excess of the older valuation cited by Mr. Aarestad), but he saw no possibility of the agrarian debt being taken over in part by the State.

He considered that the appointment of more Commissions should be avoided, and that the Storting and the Administration, assisted by the present Committee on Agriculture, would be able to concert such measures as might be necessary for the promotion of agricultural interests.

Mr. Lövenskjold, an ex-minister of State, expressed astonishment that Mr. Aarestad had not mentioned as one of the great causes of the indebtedness of the peasant proprietors the still existing law of "Aasædesret," or the right of pre-emption under which the eldest son or other senior member of a family had the right of buying out his co-heirs and co-heiresses.

This course has necessitated a constant raising of money, which, to some extent, has been carried out of the country by emigrants.

On the whole, the debate showed a unanimous agreement as to the present impoverished condition of the peasant proprietors of Norway, and whether or not Mr. Aarestad is absolutely correct in stating that only one-sixteenth of the land remains in their actual or unencumbered possession, it is evidently impossible to deny that the Law of Succession, and the exigencies of more civilised life under the great stimulus given to education, bear hardly upon the peasant proprietors.

Mr. Aarestad ultimately withdrew his motion for a Royal Commission, and an amendment calling upon the Government to enquire into the question as to what could be done in aid of agriculture was lost by a considerable majority, the prevailing opinion being that the matter should be left in the hands of the Government.

I am, &c.

(Signed) T. MICHELL.

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1893.

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TRANSLATION OF ROYAL DECREE RESPECTING
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DUCTION OF NEW INDUSTRIES INTO PORTU-
GAL, THEIR MANUFACTURE, &c.

*Presented to both Houses of Parliament by Command of Her Majesty,
APRIL, 1893.*

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PORTUGAL.

LISBON.

Sir H. MacDonell to the Earl of Rosebery.

My Lord,

Lisbon, February 20, 1893.

IN the Official Journal of the 4th instant certain regulations were published on the subject of the issue of Patents for Monopolies for the Introduction of New Industries into Portugal and for the Manufacture of the same, and also for any New and Improved Treatment of Mineral Ores in certain mining districts.

These regulations were issued in pursuance of the Royal Decree of September 30 last, in virtue of which the Portuguese Government were authorised to grant the Patents above referred to.

I have the honour to inclose herewith a Translation of the Decree in question, and also of the Regulations enacted for the purpose of carrying the same Decree into effect.

I have, &c.

(Signed) H. G. MACDONELL.

Translation of Royal Decree respecting Patents for Monopolies for the Introduction of New Industries into Portugal and for the Manufacture of the same, and for Improved Treatment of Mineral Ores.

ABSTRACT of Contents.

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"DIARIO do Governo," No. 225, of October 5, 1892 (pp. 2303 and 2304).

*Royal Decree.**

In view of the representations made to me by the President of the Council of Ministers and Minister and Secretary of State for the Finance Department and, ad interim, of the Department of the Interior, and also of the representations of the other Ministers and Secretaries of the other public departments:

I hereby issue the following Decree having the force of law:

Art. 1. The Government are at liberty, in accordance with this Decree, and should the public interests advise such a course, to grant monopolies:—

1. For the manufacture in Portugal and in the adjacent islands of any new industrial products.

2. For carrying out, within any mining zone that may be defined, the complete treatment, either mechanic or metallurgic, of the specified ores of that zone or imported into it, provided such treatment shall not have already been established therein.

Sec. 1. For the intents and purposes of this Decree, by the words "new industry" is meant any industry not actually carried on in this country at the date of the application for a concession.

Sec. 2. No monopolies can be granted in virtue of this Decree for the production of any agricultural articles or for the making of any medicines or articles of food.

Art. 2. Before granting a concession the Government, after consulting the proper departments, will give their decision on the following points:—

1. Whether the products which it is contemplated to manufacture are a new industry or not.

2. Whether the applicants are provided with the necessary funds to undertake the manufacture in question.

3. Whether the concession asked for is advantageous to the public interest.

Art. 3. The concession will be granted by the Government for a period of not more than 10 years, by means of a title-deed to be named "Patent for the Introduction of a New Industry," which is to be published in the "Diario do Governo."

Sec. 1. The concession may be renewed, but its total duration shall in no case exceed the maximum period of 10 years reckoned from the date of the first patent.

Art. 4. The patent for the introduction of any new industry only grants the right to the monopoly of making the products specified therein, and not any other products under the pretext of their being intimately connected therewith.

Art. 5. Foreigners can obtain the patents referred to provided they sign a declaration expressing their willingness to be subject to the laws of Portugal with regard to the matter of the patent.

* The Decree is preceded by a Ministerial Report dated September 30, 1892.

Art. 6. An applicant for a patent for the introduction of any new industry shall address a petition to the Department of Public Works, Commerce, and Industry, stating the name, nationality, and place of residence of the applicant, a clear designation of the new industry about to be established, or of the product or products about to be manufactured, and also the term for which the privilege is asked for, and no conditions or restrictions are to be inserted in the petition, which is to be accompanied by any documents which the petitioner may think proper to present, or which may be required by the department in support or elucidation of the application or in proof of the petitioner being provided with the necessary means for the establishment of the proposed new industry.

Sec. 1. The petition must be signed by the applicant or his representative, who will have to inclose his power of attorney in due form or else make a promise to present it within 30 days; should he fail to do so within that time the petition will be considered null and void.

Sec. 2. In order to secure the right of priority of any petition, the latter will be registered in a special book as soon as it is presented, mentioning the day and hour. The entry is to be signed by the head of the department, and may be initialled by the party interested.

Sec. 3. No blank space will be left between each petition registered in the book.

Sec. 4. No petition will be proceeded with until the applicant shall have deposited 500 milreis (111*l*.) in the General Deposits Bank as a provisional security, which will be returned in case the patent is refused, and it will be forfeited to the Treasury in the event that, after the patent is granted, the definitive amount of security as fixed by the Minister should not be deposited within the term laid down in sections 2 and 3 of Article 10.

Art. 7. After the receipt of the petition found in the due and proper form to be proceeded with, both the petition and the respective documents will be published in the "Diario do Governo," together with a notice fixing a term of not less than 2 months, calling upon anyone whose interests may be affected by the concession contemplated to put in their claims.

Art. 8. Such claims must be set forth in a petition addressed to the Department of Public Works, Commerce, and Industry within the period fixed in the notice referred to in Article 7. The claimant's signature must be certified to by a notary public.

Art. 9. An appeal may be made from the decision of the Minister granting the patent for the introduction of any new industry by the complaints to the Supreme Administrative Tribunal within the period of 30 days from the date of the publication of the patent. This appeal will have a suspensory effect.

Sec. 1. The Supreme Administrative Court will decide the matter within 30 days, by a Decree stating the grounds for
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the decision, which will have executive force, irrespective of any decree of the Government.

Art. 10. The term allowed for the complete establishment of the new industry in question, according to its nature and object, as well as the amount of the security to be given by the concessionnaire, must be mentioned in the patent.

Sec. 1. The definitive amount of security to be fixed by the Minister cannot be less than 5,000 milreis (1,111*l.*) nor more than 50,000 milreis (11,111*l.*).

Sec. 2. No patent will be valid until the amount of the definitive security shall have been deposited in the General Deposits Bank to the order of the Minister of Public Works, Commerce, and Industry, and it will become null and void in the event of the deposit not having been effected within 60 days from the date of the patent. The fact of the security being deposited is to be noted in the patent.

Sec. 3. In the event of the appeal referred to in Article 8 being lodged, the period laid down in Section 2 will be extended until after 30 days from the date of the decree of the respective court.

Sec. 4. The Government will lay down in the regulations in what cases the security referred to in Sections 1 and 2 may be withdrawn.

Sec. 5. A patent can only be issued in the name of one person or of a legally constituted joint stock company. A firm or a company "en commandite" can only get a patent in the name of one of the partners, who will hold the rights and be responsible for the obligations derived from the concession.

Art. 11. No patents for the introduction of any new industries are transferable, under any title, either in toto or partly without the previous sanction of the Government. The rule set forth in section 5 of Article 10 is applicable to those transfers.

Art. 12. The provisions of this Decree do not alter those laid down in Articles 613 to 640 of the Civil Code, or in any international conventions on the subject of the right of property to inventions.

Art. 13. A register of patents for the introduction of new industries and of the transfer of the same will be kept in the Department of Public Works, Commerce, and Industry.

Art. 14. Patents for the introduction of new industries are null and void in the following cases :—

1. Should the respective industry not be established within 1 year from the date of the patent.

2. Should it not be carried on continuously for 1 year or only at intervals for 18 months during the term of the concession.

Art. 15. Any person who shall, while a patent for the introduction of any new industry is in force, injure the patentee in the exercise of his rights by manufacturing in this country or within the respective mining zone the products mentioned in the patent, will be liable to make good the losses he may have caused, and, moreover, he will incur the penalties imposed in the Penal Code.

Art. 16. In the event of there being a suspicion that the products mentioned in the patent are being unlawfully made, the patentee or his representative may, on giving security, apply for the seizure of any machinery or instruments exclusively used for making the same, as well as of the products in the shops or factories where the said machinery or instruments are to be found, or in the warehouses or depôts annexed thereto.

Sec. 1. The rules laid down in the paragraph of Article 637 and in Articles 638 to 640 of the Civil Code are applicable to this case.

Art. 17. The Government will have the right by means of their agents to exercise the supervision as to the manner in which the patentees carry out their engagements as regards their patents; and the said agents will be at liberty to inspect the respective factories and shops whenever they may deem it expedient, and also to institute any inquiries as regards the keeping of the books and examine the archives of the said factories and shops.

Art. 18. The Government will draw up the necessary regulations for the purpose of carrying this Decree into effect.

Art. 19. Any laws contrary thereto are hereby revoked.

The President of the Council of Ministers and Minister and Secretary of State for the Finance Department and, ad interim, for the Home Department, as well as all the other Ministers and Secretaries of State, shall accordingly carry this Decree into effect.

Given at the Palace, September 30, 1892.

(Signed) THE KING.

Countersigned by six Ministers.

“DIARIO do Governo,” No. 28 of February 4, 1893, pp. 342 to 344.

Royal Decree.

In order to carry fully into effect the provisions set forth in the Decree of September 30, 1892, on the subject of the concession of patents for the introduction of new industries, and in accordance with the rule laid down in Art. 18 of the said Decree. I hereby approve the subjoined regulations attached to this Decree, and which are signed by the President of the Council of Ministers and Minister and Secretary of State for the Finance Department, and, ad interim, for the Home Department, and also by the Minister and Secretary of State for the Department of Public Works, Commerce, and Industry, and I hereby command that the said regulations shall be carried into effect accordingly by the said Ministers and Secretaries of State.

Given at the Palace on February 1, 1893.

(Signed) THE KING.

(Countersigned) JOZÉ DIAS FERREIRA.
PEDRO VICTOR DA COSTA SEQUEIRA.

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A 4

REGULATIONS for the Concession of Patents for the Introduction of New Industries in accordance with the Decree of September 30, 1892.

Art. 1. The Government may grant, in accordance with the Decree of September 30, 1892, if they are compatible with the public interests, the following monopolies:—

1. For the manufacture in Portugal and in the adjacent islands of any new industrial products.

2. For carrying out, within any mining zone, the complete treatment, either mechanical or metallurgic, of the specified mineral ores of that zone or else imported from abroad, provided such treatment shall not have already been established.

Sec. 1. For the intents and purposes of this Decree in question the meaning of the words "new industry" is any industry not yet carried out in this country at the time of the application made for the concession.

Sec. 2. No monopoly can be granted in virtue of that Decree as regards the production of any agricultural articles, or for making any medicines or articles of food.

Art. 2. The concession is to be made by the Government for not more than 10 years by means of a title-deed to be named "Patente de introdução de nova industria"—Patent for the introduction of a new industry.

Sec. 1. A concession for less than 10 years may be renewed, but the maximum duration shall in no case exceed 10 years from the date of the first patent.

Sec. 2. Each patent will only comprise products of the same industrial nature or of which the manufacture is intimately connected.

Art. 3. These patents only entitle the holders to the monopoly for the manufacture of the products especially named in the patent, which monopoly cannot extend to other products under the pretext of intimate connection.

Sec. 1. These patents do not imply either directly or indirectly the exclusive right of sale of the respective products, or of importation or sale of similar foreign products.

Art. 4. These patents can be obtained by foreigners, on their signing a declaration expressing their submission to the laws of Portugal on the subject of the patents.

Art. 5. An applicant for these patents will present to the Department of Public Works, Commerce, and Industry a petition stating his name, nationality, and place of residence, a clear specification of the new industry, which it is proposed to establish, or of the product or products about to be manufactured, and also of the period for which the privilege is asked for, and no conditions or restrictions are to be inserted in the petition. Should the petition have reference to the treatment of mineral ore, the respective mining zone must be mentioned. The petition may be accompanied by any other documents which the applicant may deem expedient, or which may be required by the department in support or for the elucidation of the application, or in

order to prove that the applicant possesses the means for the establishment of the proposed new industry. In the case of a foreigner the petition must be accompanied by a certified copy of the declaration that he remains subject to the laws of Portugal as regards the object of the patent.

Sec. 1. The petition must be signed by the applicant or his representative, who must exhibit his power of attorney in due form or else declare that he will do so within 30 days. Should he fail to present it the application will be null and void, and notice to that effect is to be published in the "Diario do Governo."

Sec. 2. No application can be made for a patent for more than one industrial product—unless the manufacture of the different products should be intimately connected—or for more than one mining zone.

Sec. 3. In order to secure the right of priority for any application that may be made, the respective petition is to be registered in a special book for the purpose, as soon as presented in the technical department of mines and industry, and the date and hour of its receipt must be noted and signed by the head of the department, and it may be initialled by the party interested.

Sec. 4. No blank space is to be left between each entry or petition in the book referred to in section 3.

Sec. 5. A petition asking for the grant of a patent must always be delivered by the petitioner or by his representative to the proper department, and it must be registered at once, and the petitioner must there and then, or at least within the maximum period of 3 days, present a certificate to prove that a provisional security of 500 milreis (111*l*.) has been paid into the General Deposits Bank, either in cash or in bonds of the public debt, according to their market value.

Sec. 6. Should he fail to produce the said certificate as regards the deposit of the provisional security within 3 days, the registration will be null and void.

Sec. 7. After the registration referred to in Section 3 for the purpose of securing the right of priority shall have been made, and the security shall have been deposited, the petition will be copied into a book in which the whole of the proceedings relative to the case will be recorded.

Art. 6. Notice will be published in the "Diario do Governo" of any applications made for the grant of patents within the period of 6 days from the date of such application.

Art. 7. Any applicant for a patent may, before the concession is made, desist therefrom in a petition signed by him and having his signature attested by a notary public, and he will be allowed to withdraw the security deposited by him, for which he must obtain permission from the Minister. Should the petition desisting from the concession be sent in after the publication of the decision granting the patent in question, the provisional security will be forfeited.

Sec. 1. Notice will be published in the "Diario do Governo" of any desistance from any patent concession as soon as the petition on the subject is received.

Art. 8. After the registration of the petition for a patent in the manner laid down in the regulations, and on its being ascertained that the petition can be proceeded with, it will be laid before the Minister, together with the whole of the documents and with the report of the department, stating:

1. Whether the legal formalities have been complied with in order that the notice may be published calling upon those who may consider that their interests are affected by the proposed concession of the patent to put in their claims.

2. Within what term—which is not to be less than two months—will such claims be received?

Art. 9. After the Minister shall have given his decision upon the report mentioned in Art. 8, the petition and the respective documents will be published in the "Diario do Governo," as well as the notice of the term—which is not to be less than two months—during which claims may be put in against the concession asked for on the part of those whose interests may be affected thereby.

Sec. 1. Separate printed copies will be made of the petition and documents published in the "Diario do Governo," in order that they may be posted up at the Public Exchange at Lisbon and Oporto, and distributed among the industrial, commercial, and agricultural associations legally constituted, and among the journals having a greater circulation in the country.

Art. 10. A claim against any applications for the concession of patents may be presented by any person, firm, company "en commandite," joint stock company, or any legally constituted industrial, commercial, or agricultural association. It must be drawn up in a petition signed (with the signature attested by a notary public) and delivered at the Department of Public Works, Commerce, and Industry at any time up to the last working day of the term, as published in the notice inserted in the "Diario do Governo."

Sec. 1. Certificates of any claims sent in against the concession of any patents can be given to any person asking for them.

Art. 11. At the expiration of the term allowed for receiving claims, the department will report upon the matter, stating:

1. The nature of the products which it is proposed to manufacture, the probable average consumption of the same per annum in this country (quantity and value), and how far the new industry is likely to be developed.

2. What claims have been presented against it and of what importance.

3. Whether the said products actually constitute a new industry.

4. Whether the applicant has got the necessary funds in order to undertake the manufacture of the same.

5. Whether the concession asked for is advantageous to the public.

6. Whether the patent asked for ought to be granted or not, and, in the affirmative :—

- (a) For what period.
- (b) The amount of definitive security.
- (c) The term allowed for the complete installation of the new industrial pursuit or undertaking.
- (d) The minimum annual production for which factories, shops, and machinery must be set up.
- (e) The respective mining zone, if it be a question of the treatment of mineral ores.

Art. 12. The report made by the department, together with the whole of the documents in the case, must be forwarded to the Industrial Section of the General Board of Commerce and Industry in order that they may give their opinion upon the points mentioned in Art. 11.

Sec. 1. The above-named section may, through their vice-president, call upon the Technical Department of Mines and Industry, upon the industrial inspectors, or upon the petitioners to furnish them with further information in order to enable them to complete their opinion.

Art. 13. Their opinion will then be laid before the Minister, together with the whole of the papers upon the case.

Sec. 1. Should the Minister grant the application the concession will be accorded by means of a patent for the introduction of a new industry, of which the text is to be published in full in the "Diario do Governo." In the event, however, of the Minister refusing to grant the application, an extract only of his decision to that effect will be published in the same official journal.

Art. 14. Mention is to be made in the patent, which must have a series number, of the name and address of the patentee, of the period for which the concession is granted, of the term for the complete establishment of the new industry, according to the nature and object of the same, of the minimum annual production to which the patentee binds himself, of the amount of security to be deposited, of the respective mining zone—should the concession refer to the treatment of mineral ores, and of any other special clauses that may be imposed.

Sec. 1. The amount of the definitive security will be fixed by the Minister; it will not be less than 5,000 milreis (1,111*l.*), nor more than 50,000 milreis (11,111*l.*).

Sec. 2. No patent will be valid until the amount of the definitive security shall have been paid into the General Deposits Bank to the order of the Department of Public Works, Commerce, and Industry, and unless a declaration shall have been inserted in the patent to the effect that the said security has been paid. The patent will become null and void in the event of the security not being paid within 60 days from the date of the patent.

Sec. 3. In case the appeal referred to in Art. 22 should be

made, the terms laid down in the foregoing section will be extended until after 30 days from the date of the Decree of the Court of Justice.

Sec. 4. The amount of the provisional security will be taken into account in reckoning the amount of the definitive security.

Sec. 5. A patent can only be issued in favour of an individual or of a legally constituted joint stock company. A firm or partnership or a company "en commandite" can only obtain a patent in the name of one of its partners to whom the whole of the rights, as well as the obligations derived from the concession, will appertain.

Special provisions with respect to patents relating to the treatment of mineral ores.

Art. 15. The following are the mining zones into which the continental part of Portugal is divided with reference to the concession of monopolies for the complete treatment, either mechanical or metallurgic, of any mineral ores of copper, iron, manganese, lead, silver, or pewter (not at present carried out in this country):—

(a) Copper mineral ore—

1. The area comprising all the delimitations of copper pyrite mines.

2. The area comprising all the delimitations of copper mines in defined veins.

(b) Iron, manganese, and iron-manganese ore—

1. The area comprising the delimitations of any iron, manganese, iron-manganese, coal, and lignite mines, situated in the administrative districts to the south of the Mondego, including the whole district of Coimbra.

2. The area comprising the delimitations of any iron, manganese, iron-manganese, coal, and lignite mines situated to the north of the Mondego, excluding the district of Coimbra.

(c) Lead and silver ores—

1. The area comprising the delimitations of lead mines.

2. The area comprising the delimitations of argentiferous lead mines, the meaning of which is that its standard* of silver is not less than 0.0002.

(d) Pewter ore—

1. The area comprising the delimitations of any mines of pewter or tin alluvions.

2. The area comprising the delimitations of pewter in defined veins.

Sec. 1. As regards other mineral ores not specified in Art. 15 the respective zones will in due time be fixed by a Decree.

Art. 16. By complete mechanical treatment is meant a combination of operations applied to mineral ores for the purpose of extracting therefrom the products in a fit state to undergo the direct metallurgic treatment, and the so-called complete metallurgic treatment is that in which metals reach that condition of relative purity so as not to require any fresh operations or

* Teoc.

further transformations, except the requisite adaptation as to shape with a view to their being utilised as raw materials for other industries.

Sec. 1. All patentees or explorers of mines shall have the right to apply to their mineral ores—in order to enhance their value—any mechanical or chemical treatment which they may deem most expedient until the same are delivered over to the establishment where they are definitively converted into metal for industrial purposes.

Art. 17. Within the area of the mining zones, as laid down in Art. 15 for each kind of mineral ore, the monopoly of complete treatment includes not only the mineral ore explored therein but also that imported.

Art. 18. The concession for the monopoly of the mechanic or metallurgic treatment of mineral ore is subject to all the formalities and rules set forth in these regulations as regards patents for the introduction of any other new industries.

Art. 19. Each patent for the introduction of a complete mechanic or metallurgic treatment comprises only one zone and one kind of ore, but the monopoly for more than one zone and for more than one kind of ore may be granted to the same individual or company provided that there must be a special patent for each zone and for each kind of ore.

Art. 20. A monopoly can only be granted for any system of complete treatment which will not yet be in operation at the date of the publication of these regulations, but when a monopoly is asked for any system of treatment which may have already been carried on in this country and for the working of which there may be still factories in existence, notice must be given to the owner of the same to apply for the proper concession within 15 days in accordance with the Decree of September 30 and with these regulations, should he be willing to do so, in which case he will be given the preference.

Art. 21. The holder of the monopoly for the treatment of mineral ore is bound to purchase, should the proprietors of mines so wish it, the respective mineral ore in his zone as far as the minimum amount of production fixed in the patent, provided it is adapted to the industrial pursuit in which he is engaged, and it is furnished to him at prices regulated in accordance with the following sections, taking into account the conditions in which the exploration is carried on, the cost of transport to the factory, and the standard or fineness of the mineral ore.

Sec. 1. In order to regulate the price of the different mineral ores the Technical Department of Mines and Industry will publish fortnightly in the official journal tables of the prices quoted for mineral ores and metals forming the subject of the monopoly granted by the patent.

These tables will be drawn up by the Industrial Section of the General Board of Commerce and Industry, subject to the undermentioned considerations:—

1. That the price fixed, although remunerative to the ex-

plorers of mines, should never be in excess of that at which the holder of the monopoly of treatment can obtain similar foreign mineral ores at his factory.

2. The special conditions under which the mines in the respective zone are worked as well as their situation.

3. The variations in price of the products of a similar nature in foreign markets.

Sec. 2. Should there be any doubt or dispute as to the utilisation of the mineral ores or as regards the value of the same, the parties interested may represent their case to the engineers for the respective mining district, who will collect samples of the ores forming the subject of the dispute in order that they may be analysed, at the expense of the claimant, in the laboratory of the Technical Department of Mines and Industry, and he will send in his report as to the expediency or in expediency of the utilisation of the same and as to their valuation according to the result of the assays, the standard fixed, and the situation of the mine and the distance from it to the factory. The engineer's report will be forwarded by the Technical Department to the Board of Commerce and Industry, whose decision upon the matter will be final.

Sec. 3. In order that the holder of the monopoly may be able to regulate his purchases of mineral ore, the concessionnaires or explorers of mines in any zones where there may be any patents for the introduction of a complete system of treating the same, are bound to forward to the chief of the mining district not later than the last working day in each quarter, a note of the ore they are able to supply, which information the chief will communicate to the holder of the monopoly.

Sec. 4. The latter shall also acquaint the chief every quarter with the quantity of ore required for his factory in the course of next quarter.

Sec. 5. Any concessionnaire or explorer of mines who shall fail to forward to the chief within the proper time the note referred to in Sec. 4 will forfeit his right to the guarantees accorded in this Article and in its section 2.

Sec. 6. Should the production of the mines of any zone be in excess of the minimum referred to in this Article, the engineer-in-chief of the district, after ascertaining that the notes referred to in the third section are correct, will submit to the Industrial Section of the Board of Commerce and Industry—to be settled by them—the pro rata deduction to be distributed among the concessionnaires of the several mines which are being worked, for the intents and purposes of the provisions contained in this Article.

Appeals.

Art. 22. An appeal may be made from the Minister's decision granting a patent to the Supreme Administrative Court within

30 days from the publication of the patent. This appeal will have a suspensory effect.

Sec. 1. The appeal is to be made directly to the Supreme Administrative Court.

Sec. 2. The Secretary to the Court will at once forward to the Department of Public Works, Commerce, and Industry a certified copy of the appeal against the granting of the patent, and the Department will publish a notice in the "Diario do Governo," mentioning the appellant's name and the patent appealed against, and declaring that it is suspended until the final decision of the court.

Sec. 3. The court will give a decision within 30 days in a Decree in which the grounds of the decision are to be stated. It will have executive force without any Decree of the Government. The Decree is to be published in the "Diario de Governo" within the term of 3 days.

Substitution of Securities.

Art. 23. The definitive security continues in force during the whole period of the concession, but after the complete establishment of the new industry the Government may give their sanction, on the application of the concessionnaire, in order that the definitive security should be withdrawn from the General Deposits Bank, and a mortgage, drawn up in a public deed and duly registered, upon the land, buildings, and machinery in the factory and shops may be substituted for it. For this purpose, the value of the land and buildings shall be that inscribed in the assessment schedule for the payment of the land tax (Predial); the value of the machinery is to be fixed according to the valuation to be made by two engineers named by the Department of Public Works, Commerce, and Industry, but not exceeding the cost of such machinery and excluding all differences of exchange, freight, insurance, import duty, expenses of placing, and others.

Sec. 1. Should the amount of the definitive security exceed the value of the land, buildings, and machinery in the factory or shops, only that part of the security corresponding to the value of the land, buildings, and machinery can be allowed to be withdrawn.

Sec. 2. The application for the purpose of obtaining the substitution of a mortgage on the land, buildings, and machinery in the factory or shop, in lieu of the whole or of a part of the definitive security, must be accompanied by a certificate of the amount of land tax ("Predial") leviable on the houses in question, and by a declaration of the cost of the machinery and of the manufactory or establishment where it was bought.

Cession or transfer of patents.

Art. 24 Patents cannot be transferred either wholly or

partly, under any title, without the sanction of the Government. It will only be granted in the event of the Government not deeming it inexpedient to do so, and, in accordance with this Article, after the concessionnaire shall have deposited the definitive security.

Sec. 1. The cession or transfer either of the whole or of a part of a patent will not be valid unless it is made with the previous sanction of the Government, after it shall have been duly registered and the transfer recorded on the patent itself.

Sec. 2. Any patentee who may wish to transfer his patent will address a petition to the Department of Public Works, Commerce, and Industry stating the name of the party to whom the transfer is to be made, and as to whether the transfer has reference to the rights derived from the patent throughout the whole of the area to which it applies, or only to a part of the same. The Department may require the petitioner to furnish the necessary information bearing upon his application.

Sec. 3. In the event of the death of any concessionnaire, his heirs may present the legal document as regards the division of the property and ask for the transmission of the patent, in accordance, as far as possible, with the provisions set forth in this article and its sections, but, in any case, the patent must be inscribed in the individual name of one of the heirs or of their representative.

Sec. 4. The Government's sanction for any transfer is to be given by means of a "Portaria," and the deed of transfer shall only be drawn up on the presentation of such a document.

Sec. 5. The cession of the patent may be either for the whole of its area or for a part, and it will comprise the whole of the products included in the patent. The cession, whether it be done gratuitously or in virtue of any onerous title, can only be effected by a public deed, except in the case mentioned in Sec. 3.

Sec. 6. After the public deed is drawn up a certified copy is to be delivered to the Department of Public Works, Commerce, and Industry, accompanied by a petition asking for its registration and for the proper entry in the patent itself. In no case will the registration be made until the documents in question shall have been presented.

Sec. 7. Notice will be given in the "Diario do Governo" of the registration of any transfer of patents within the period of 3 days after it is effected.

Art. 25. Whenever the patent is ceded for the whole area, the security given by the former patentee will continue for all intents and purposes until the transferee shall have deposited his security for the same amount; after which the former security may be withdrawn.

Sec. 1. Should the cession of the patent have reference to a part only of the area, the former patentee will be responsible for all the engagements set forth in the patent, and consequently no change is to be made in the security.

Fiscal supervision.

Art 26. It will be the duty of the industrial inspectors to exercise a supervision as to the manner in which patentees carry out their engagements as set forth in the patents, and, therefore, it is incumbent upon them :—

1. To visit the factories and shops where any new patented industries are worked, within his district, every 3 months, and also to visit them at other times, whenever the public service may require it or in accordance with orders received.

2. To examine their respective installations and to verify the amount of production.

3. To report any interruptions in the working of the same.

4. To draw up an official record of any infractions of the patents that may be committed, and to forward the same at once to the proper department.

5. To make such inquiries and investigations, as directed by their superiors, as to the manner in which the engagements set forth in the patents are carried out, for which purpose they will be at liberty to examine the books and archives of the factories and shops.

Sec. 1. The fiscal supervision referred to in this article will, in so far as regards the concessions for the treatment of mineral ores, be exercised by the engineers in charge of the respective mining district.

Art. 27. At least a fortnight before the termination of the period allowed for the complete installation of the establishment for the working of the new industry the patentee is bound to give notice to the Department of Public Works, Commerce, and Industry, through the Technical Department for Mines and Industry, where the respective factories and shops are situated. The last-named department will issue the necessary orders to the inspector of the district to inspect the factories and shops without any delay, in order that he may ascertain whether they are able to yield the minimum annual production as fixed in the patent. The result of this inspection is to be embodied in a report which he is at once to address to the proper department.

Sec. 1. When the factory and shops are intended for the treatment of mineral ores, the inspection in question will be made by the engineers of the mining district in which they are situated.

Cancelling of Patents.

Art. 28. Patents will become null and void in the following cases :—

1. Should the respective industry not be installed within the period fixed in the title-deed granting the patent, and which is to be reckoned from the date of the patent.

2. Should the respective industry fail to be carried on uninterruptedly for one year, or only at intervals during 18 months, throughout the period of the concession. -

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Sec. 1. For the intents and purposes of this Article a new industry will be looked upon as non-established, or as not carried on whenever it is unable to produce the minimum quantity fixed in the patent.

Art. 29. As soon as the Department of Public Works, Commerce, and Industry shall become aware of the fact, whether it be by means of an intimation from any public official, by any denunciation, or in any other manner, that any patentee has wholly or partly suspended the working of his industry, the Government will cause the inspector to make the necessary inquiry, for which purpose he will visit the respective factory or shops. The result is to be embodied in an official record, which is to be sent at once to the proper department.

Art. 30. In the event of any patent becoming null and void under any of the contingencies referred to, the department will call upon the patentee to make an explanatory statement on his behalf within 15 days. On the receipt of this statement, or at the expiration of the above-mentioned period, without its having been sent, the suit with all its pleadings duly completed will be laid, together with a report from the department, before the Industrial Section of the Board of Commerce and Industry for their opinion upon the matter. The Minister is the competent person to give a decision as to the cancelling of the patent.

Sec. 1. As soon as any patent is cancelled notice to that effect is to be given at once in the "Diario do Governo."

Sec. 2. The cancelling of any patent will always entail the forfeiture in favour of the Public Treasury of the amount of security in deposit.

Art. 31. Patents will terminate on the very day on which the period is fixed therein expires, whether the same be in the hands of the original patentee or of any other person to whom it may have been transferred. The said period is to be reckoned from the date of the patent, without any interruption whatsoever.

Fees.

Art. 32. The following is the schedule of fees leviable:—

	Currency.	Sterling.
	Reis.	£ s. d.
For each patent	20\$000	4 8 10
For each entry with reference to the definite security or to the transfer or cession of any patent	1\$000	0 4 5
For a certificate per each page	500	0 2 2½

Sec. 1. In addition to these fees the respective stamp dues and additional rates fixed by law will have to be paid.

(Signed) PEDRO VICTOR DA COSTA SEQUEIRA.

At the Palace, February 1, 1893.

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FOREIGN OFFICE.

1893.

MISCELLANEOUS SERIES.

N^o. 304.

REPORTS ON SUBJECTS OF GENERAL AND
COMMERCIAL INTEREST.

PORTUGAL.

REPORT ON THE
PORT WINE TRADE OF OPORTO.

REFERENCE TO PREVIOUS REPORT, Miscellaneous Series No. 118

*Issued during the Recess and Presented to both Houses of Parliament
by Command of Her Majesty.*

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PORTUGAL.

OPORTO.

Acting-Consul Grant to the Earl of Rosebery.

My Lord,

Oporto, August 24, 1893.

I HAVE the honour to forward a Report, herewith inclosed, on matters connected with the Port Wine Trade, which I hope to follow up at an early date with another dealing with other subjects.

I have, &c.

(Signed) HONORIUS GRANT.

Report on the Port Wine Trade of Oporto.

ABSTRACT of Contents.

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The exportation of port wine has for many years past formed, and in all probability will continue to form, the chief trade in the district, if indeed it does not actually exceed the whole of the rest of the trade in the kingdom put together.

General
remarks.

The circumstances connected with the growth, preparation and other matters relating to port wine have been from time to time so fully, exhaustively, and, it need hardly be said, so ably treated by Mr. Crawford up to within a few years ago, that it will not be necessary to do more than very succinctly recapitulate the course of events so as to bring the information on the subject up to the present date. Few industries or trades have perhaps since their creation undergone such a series of vicissitudes as those connected with the growth and export of port wine. Diseases and pests of various kinds, Government restraints and attendant corruption, exaggerated reports about adulteration, changes in public tastes and in fiscal arrangements; all these have in some way or another and at various times contributed to the injury of farmers and shippers. Undoubtedly the most serious of these hardships has been the sad work of devastation in the vineyards of the old wine district by the phylloxera, whose ravages at one time threatened to completely ruin the whole of the best wine-producing district in Portugal.

Commence-
ment.

The port wine trade began, roughly speaking, about three hundred years ago, the wines then shipped being those grown in the neighbourhood of a seaport town some 30 miles to the north of Oporto. Gradually, however, purchases were transferred to the Douro region which became known as the port wine country. In 1703 the famous Methuen Treaty was made, whereby Portugal favoured British manufactures in exchange for a special treatment of Portuguese wines which were admitted at a duty of two-thirds of that imposed on those of French origin, an arrangement which not only led to a considerable exchange of commodities while it endured, but also left lasting effects after its exclusive terms had ceased to exist, inasmuch as Portugal had during its régime got accustomed to British manufactures, and the English people had, in a like manner, acquired a taste, which shows no signs of abating, for the wines of Portugal. Whether this Treaty led to good results to British trade generally is of course quite another matter altogether.

Treaty.

About 50 years after the signing of the Treaty the Portuguese Government established a Monopoly Company, and bad times fell on the trade in the shape of almost every kind of restraint it was possible to imagine, which, while very much enhancing the price of the wine to the consumer, did not leave all the difference to be divided as legitimate profits among the grower, shipper and merchant, much of the expense going into quite illegitimate channels. The arbitrary way in which private traders were treated would now scarcely be believed. The monopoly came to an end in 1865, and although four years ago the Government granted State aid to a new Company, a measure which aroused very great opposition at the time from the trade in

general, native as well as foreign, its privileges are not to be compared to those enjoyed by the old Company, and these, such as they are, are now, it is stated, in course of modification. In the meanwhile, the vine had been assailed by "Oidium Tuckeri," ^{Disease.} which began its damage about 1852, phylloxera which, although it had apparently been existent in a latent condition for some years, began to be sensibly felt in 1872, by mildew whose appearance is relatively modern, and finally by other pests of less importance, such as "anthracnosis, anguillula," &c. For oidium the vines undergo every year a treatment of sulphur, which is applied by means of bellows, and for phylloxera and mildew bisulphide of carbon and Bordeaux mixture (sulphate of copper and lime) are applied, respectively, as deterrents. The remedy for phylloxera has not been found so efficacious as that for mildew; in the latter case, when applied in time, it has generally been found to have had successful results. This year, farmers who have neglected to use it have been very severe losers from the effects of this pest, the crops of entire vineyards having in many cases been destroyed. It is, however, as has already been said, the phylloxera that has caused the greater part of the enormous damage done to the chief agricultural produce of the country. It has been computed that since the invasion of the vines by this insect, in the Douro district alone, the production has decreased up to last year by 11,800,000 gallons. To assist the farmers in combating these evils the Government adopted some years ago and still keep in force the following measures:—The sale to farmers of bisulphide of carbon at one-third of the cost of its production, free carriage of this insecticide and of lime, manures and vine dressings over the State railways, the establishment of vine nurseries in different parts of the country, and the importation of large quantities of rooted cuttings, which are either distributed gratis among the farmers or sold to them at a considerable reduction.

Although these diseases have caused very great havoc all over the whole country, not only have the exports from Oporto shown no decrease, but on the contrary, as will be seen by the subjoined table, the exportation would appear to be on the increase.

Exports.

TABLE showing the Quantity of Wine Exported to England during the Years 1880-92.

Year.						Quantity.
						Gallons.
1880..	..	..	..	..	..	3,354,154
1881..	..	..	..	..	..	3,200,579
1882..	..	..	..	..	..	3,152,277
1883 .	..	..	..	..	..	3,528,811
1884..	..	..	..	..	..	3,559,076
1885..	..	..	..	..	..	3,485,538
1886..	..	..	..	..	..	3,698,482
1887..	..	..	..	..	..	3,767,089
1888..	..	..	..	..	..	3,638,763
1889..	..	..	..	..	..	4,536,358
1890 .	..	..	..	..	..	4,398,720
1891..	..	..	..	..	..	4,381,269
1892..	..	..	..	..	..	5,838,543

The total exports to other countries have also been on the increase. The abnormal difference in the number of gallons shipped in 1892 as compared with the preceding years will be accounted for further on.

The question might naturally arise, How is it that while the produce is diminishing the exportation is on the increase? The following are the explanations:—1st. Large tracts of country have been brought into cultivation of the vine where formerly other produce was grown or which had been lying waste. 2nd. A very large quantity of wine which used to be consumed in the country or made into brandy, chiefly from the outlying districts in the Douro, is now exported, and whereas formerly practically all the brandy used in port wines was made in the Douro, the amount made there now is so small as to be of little importance. 3rd. The practice of mixing Douro wines of the lower qualities with wines from other districts in the South of Portugal.

Replanting.

In replanting vineyards destroyed by the phylloxera great use has been made of American vines, on which European kinds have been grafted, and the result has been very satisfactory. The same, however, cannot be said of wine made from the grapes of most American varieties, as it has been found to possess a most objectionable flavour, and hitherto no hybrid vine has been introduced from which port wine can be made. The application of artificial manures is also now made on a large scale, and has contributed by causing an increased production in some places to counterbalance the damage sustained in others. It has been stated that the consumption of bisulphide of carbon forms, to a certain extent, a measure of the cultivation of the vine, as hardly any vines* are now left without the application of the insecticide.

* This applies to the European vines only, the American kinds not requiring this treatment.

The following table, therefore, would show the large increase in viticulture which is gradually taking place in the Douro district, where the consumption is computed at an average of 60 per cent. of that of the whole kingdom. Many farmers, who were at first disheartened at the ruin of their crops, are now applying the remedy on seeing the good results that others have obtained.

CONSUMPTION of Bisulphide of Carbon as a Remedy for
Phylloxera in the Kingdom of Portugal.

Year.	Quantity.
	Kilos.
1879-80 (last quarter)	26,505
1880-81	85,113
1881-82	52,326
1882-83	119,974
1883-84	218,972
1884-85	381,200
1885-86	592,914
1886-87	929,286
1887-88	910,884
1888-89	946,499
1889-90	1,340,606
1890-91	1,788,720
1891-92	1,417,646

The diminution in the last year is attributed partly to the effects of the financial crisis and partly to the difficulty in making the application in some places at the proper time owing to long-continued rainfall.

In regard to the actual process of wine-making no material Wine making. change has taken place in its principal operation—that is to say, the pressing of the grapes is still performed by gangs of men who are employed to tread them. That this old-fashioned process is still resorted to is not caused only by motives of economy or too great an attachment to routine, but because it has been found by experience that this process has advantages over mechanical ones. It is true that presses would in some cases be too costly, as a very large proportion of the wine is made by persons holding small farms, but they are also apt to give a bitter taste to the wine by breaking and crushing the stalks and pips. It is generally thought also that the heat from the men's legs facilitates fermentation by raising the temperature, especially if the weather be cold. For this initial operation of wine making presses have been tried, but found wanting. Powerful presses are, however, now much used to express the remaining liquid from the skins after the must has been drawn off. This gives about one extra pipe (115 gallons) of wine for every 20 made from the same grapes, but as the liquid so produced has a strong taste of stalks shippers generally keep it separate from the rest of the wine. Should the grapes not be

trodden and simply left to ferment, fermentation is irregular, and the wine so made is found to be mawkish and wanting in firmness owing to the lack of tannin extracted from the stalks and skins.

Qualities. The following is a table of the qualities of the wine from the Douro district for the last six years :—

Year.					Remarks.
1887	..	..	..	..	Very good; fine rich flavour; shipped as a "vintage"
1888	..	..	..	..	Thin, poor; heavy rain during vintage
1889	..	..	..	..	Good
1890	..	..	..	..	Very good; sweet and ripe; shipped as a vintage
1891	..	..	..	..	Poor
1892	..	..	..	..	Very good; especially in fine situations

With regard to the current year it is, of course, impossible to foretell the quality, but as to quantity it is generally feared that, owing to storms, sudden heat, and, above all, the destruction caused by mildew, it will be considerably below the average.

Sales by
auction.

Towards the beginning of last year the trade was thrown into a state of excitement by the purchase of no less than 17,000 pipes (about 1,955,000 gallons) for sale by public auction, 13,000 of which were shipped and put up for sale during the year. These sales had already been preceded by other sales on a large scale, also by public auction, made by houses in financial difficulties, and the consequence was the inability of the English markets to absorb all at once so enormous a stock of wine, so that last year there were as many as 1,000,000 gallons in excess of the usual stock in bonded warehouses. These shipments were made ostensibly by a Lisbon banking firm hitherto unconnected with the wine trade, but it was commonly rumoured at the time that they were only acting mediately in the affair, and that the real trader was the Portuguese Government. This, according to a recently published report on the administration of the finances of the country for 1892, would appear not to have been exactly the case. It would appear from this document that, in December, 1891, the banking firm proposed to the Government a transaction, based on the purchase and export of Portuguese wines to markets. "where their sale is assured," this transaction having reference to others pending between them and the Government, and to repayment in silver for advances to be made in paper currency (which had then a depreciation of about 30 per cent.), the Government to retain the profit arising out of the coinage of the same. The Government then came to an arrangement with the Bank of Portugal, in virtue of which a contract was entered into in January, 1892, whereto the parties were the Government, the Bank of Portugal, and the firm who had made the suggestion, according to which the bank were to advance to the private firm the sum of 1,000,000 milreis in currency, to

be repaid in silver coin, or the equivalent in bar silver, the latter having to deposit in security for this advance internal bonds of four times the amount belonging to the Treasury which, in connection with other negotiations, they seem to have had in their hands. On their part the Government, who were to have no responsibility in the matter, either as to profit or loss in the sale of the wines, gave their sanction to the contract between the Bank of Portugal and the firm in question, thus practically assisting in financing the scheme. The intention was, no doubt, excellent, but, owing to circumstances connected with the London market, and probably others, the business (according to the reports in the English newspapers) was not a success, and the ultimate advantage to the country is more than doubtful. It is curious to note that this subject, although one of great interest to the country, has received scant, if any, notice from the local press. The legitimate trade was again recently affected by the further occurrence of forced sales on behalf of houses which have subsequently failed to meet their engagements. Although, however, the trade may, owing to these causes, be in a somewhat disturbed state, and the regular course of transactions checked for a time, there is no reason to doubt that it will eventually recover its proper level, it being not in the very least likely that the same sensational transactions will be repeated. There is another reason, too, why the regular trade should not have been so much disturbed as it might otherwise have been by the enormous quantities of wine thrown on the market. It is the following:—Although old-established firms of high repute cannot sell at the low prices at which many parcels are knocked down at public auction (sometimes manifestly at a loss), the advantage of buying from them lies in the fact that, in investing their money in each pipe of wine coming from a respectable firm of shippers, customers have learned to consider their capital, at all events, as perfectly safe, it being the invariable practice of such firms to make good any loss which may occur in the event of the wine becoming unsound even after a considerable number of years may have elapsed since its shipment. No such guarantee, I believe, is attached to wines disposed of by public auction.

The trade have ever complained of restraints and hindrances Duties. arising out of Government measures. The last and most important of these (there being no need to make more than a passing reference to the enormous duties on bottles, as this is a matter which does not affect British interests, the export to England in bottle being infinitesimal) consists of the great rise, caused by Government measures, in the price of alcohol, which in the preparation and for the preservation of lower class wines (wine-brandy being used for the better kinds) is an absolutely indispensable ingredient.

Until about nine years ago a considerable quantity of spirit distilled from grain was imported from Great Britain, but the duties which had been successively raised were made prohibitive, and this trade became a thing of the past. Spirit continued to be

imported for some time from Germany, as it was considerably lower in price, being made from the refuse of the beetroot used in the manufacture of sugar, which did not crystallise, and which, I believe, was besides assisted by a State bounty. This importation in its turn practically came to an end some time ago, when the Government raised the duties to a prohibitive point in order to favour the spirit made from sweet potato in the Azores Islands.

Afterwards the Government conceived the idea of forming a monopoly with the existing distilleries, but the owners claimed such high prices for their plant that the idea was abandoned, and it was arranged that the distillers should pay an excise duty on the amount of spirit produced, the Government, as an inducement for the acceptance of this plan, agreeing to prohibit the setting up of fresh distilleries, and placing restrictions on the importation, so as to guarantee to the distillers a price which would enable them to carry on their business at a profit while paying to the Government excise duty on the production. This arrangement lasted eight months, during which time, as was not surprising, complaints were general as to the quality of the spirit supplied by the monopolists, in addition to which shippers found themselves at the mercy of the officials of those monopolists, not only as regards quality, but even with regard to measurement. At the expiration of this time the Government, finding that the revenue anticipated was not forthcoming, cancelled its contract with the distillers, but matters did not mend for the wine trade, because the Government raised the excise duty (about $2\frac{1}{2}d.$ per litre*) by 100 per cent., on which the distillers increased their prices in proportion. Subsequently, a compromise was made, whereby distillers pay $3\frac{1}{2}d.$ per litre excise and foreign spirit $9\frac{1}{2}d.$ import duty, the Government undertaking to raise the import duties whenever foreign spirit can be imported here under 1s., thus practically guaranteeing to the distillers a net price of 1s. per litre minus $3\frac{1}{2}d.$ excise duty, and preventing the wine trade from obtaining spirit at anything under 1s. the litre, a price far in excess of what obtained before this arrangement came into operation. It may be roughly estimated that owing to these measures about 17 milreis (3*l.* 15*s.* 6*d.*) has to be added to the cost of the wine before it can be shipped, which would be avoided were there free trade in spirit, and although if this were the case part of the revenue from this source, which is put down at between 133,000*l.* and 155,000*l.* a year, would cease to accrue, it would appear more than likely that such a loss would be compensated by an enormous increase in the exportation, as it would enable genuine Portuguese wines (especially if the export duty of 14*s.* per pipe were abolished) to entirely supersede the "ports" from Hamburg and Tarragona.

Although, as has been mentioned, there is no reason to doubt that the trade will eventually recover its normal condition, it would perhaps be taking an over-sanguine view of things to

* These figures are approximate.

expect that this will take place in the immediate future. There can be no doubt that the trade is now in a very critical state. In addition to the circumstances already mentioned, there is another which has tended to restrict sales in port wine, and that is the unsettled state of trade in general at home owing to the Australian crisis, bad harvests and other causes. Already the export for the first six months of the present year shows a remarkable decrease in comparison to the usual quantities, even taking into account 3,000 pipes forming part of the semi-official shipments already referred to.

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No. 306.

PORTUGAL.

BEIRA.

Vice-Consul Hussey-Walsh to the Earl of Rosebery.

My Lord,

Beira, August 1, 1893.

I HAVE the honour to state that in order to be able to deal efficiently with questions that will probably arise as to the transit of merchandise to the British sphere of influence, and to be in a position to give reliable information on this point to British subjects applying at this office, I deemed it indispensable to personally investigate the conditions of transport from Beira to Umtali by undertaking the journey myself.

I left Beira on July 1 and returned on July 23.

Going at the time I did I had the advantage of the company of the Consulting Engineer of the Beira Railway Company who was undertaking the same journey for the purpose of arranging the waggon transport and selecting a line of country for the prolongation of the railway.

As a result of my observations I have the honour to forward herewith a Report on the Beira route to Mashonaland, to which I have added a short description of the country I passed through.

The transit of merchandise is being done on a pretty fair scale this year by carriers, but it is expected that it will assume a very considerable development when once the railway and waggon transport is organised.

I have, &c.

(Signed) W. P. HUSSEY-WALSH.

*Report on the Railway Route from Beira to Mashonaland.**General Remarks.*

General remarks. The railway is in working order for 45 miles from Fontesvilla and the formation is practically finished for another 30 miles; the few gaps that exist will be filled up within a month. A delay in laying the rails has been caused by a deficiency of special sleepers for the curves which in the Chiruve range of hills are somewhat numerous.

These have now arrived, and it may be expected that the line will be in working order to the 75th mile by the end of September.

Floodings. The first 30 miles of line which runs through country that is flooded during a portion of the rainy season is being improved, so that it is hoped that next year's floods will at the worst only cause a temporary suspension of traffic.

Gauge. The gauge is 2 feet, weight of rails 20 lbs. per yard, the steepest gradient is 1 in 50, and the sharpest curve 1 of 4 chains. This line is considered good enough for the pioneer work it is intended for. There will be but little difficulty in building a 3 feet 6 inch gauge railway along the line of the present formation, should the extent of traffic warrant it, in which case the old stock could readily be disposed of, as there would probably be a demand for the rails now in use for mining work.

A party of surveyors is now at work between the 75 mile peg and Chimoio for the purpose of continuing the line to that point.

Material. Sufficient material for 35 miles, the approximate distance between these two points, has been ordered, and I consider this line ought to be an easy one to make and cheap to maintain.

Within the next couple of weeks a party is going to start the survey from here to Fontesvilla with a view to bringing the line to Beira itself. An elevation of ground called the Dondo Ridge extending from within 2 miles of here to Mpandas offers facilities for such a purpose.

The road known as Selous' Road, from Chimoio to Umtali, is in workable order, but is being improved by the British South Africa Company.

Roach's Road. Roach's road from Chimoio to Mpandas, made in 1891, can still be traced, and where it passes near Douro's Kraal is about 10 miles distant from the 75 mile peg of the railway.

A Scotch cart used it about two months ago, but all the oxen got fly bitten.

Transport.

Transport. From the end of the line (45 mile peg) to Chimoio, the only means of transport at present is by carriers. From Chimoio to Umtali a bi-monthly waggon transport service has just been started by private enterprise. Passengers with 50 lbs. of luggage free, 3*l.* each; general goods, 15*s.* per cwt.

The British South Africa Company are at present continuing the waggon-road from Chimoio towards the 75 mile peg, the idea being to run waggons between these two points in spite of the fly.

It has been estimated that by charging 5s. per cwt. (5l. per ton), a profit will be made notwithstanding the loss of oxen.

Offers have already been made at Salisbury to transport goods between Chimoio and Salisbury at the rate of 15s. per cwt. (15l. per ton), and there is reason to think that competition will reduce the price to 10s. per cwt. (10l. per ton) if there was much traffic.

The freight from Beira to Fontesvilla is 1l. 5s. per ton, and from Fontesvilla to the 75 mile peg will probably be about 2l. per ton. Freights.

This will make the total cost per ton from Beira to Salisbury in the first instance, 23l. 5s., as against 45l. per ton by the road from the Cape to Salisbury. When the railway is finished to Chimoio (perhaps next January), and competition in the waggon traffic reduces prices, the cost per ton will probably be about 15l. (fifteen pounds).

The present means of transport between Fontesvilla and Umtali is by carriers. They are almost all Mashona boys. Means of transport.

Each carrier takes a load of from 40 lbs. to 50 lbs. besides his food, and the goods he has bought, or is paid in for the journey.

The cost of a carrier for the journey is, including food, about 25s., but it hardly costs firms, who pay their boys in goods, 20s.

A considerable amount of merchandise is being transported this year by this means.

The Country.

The scenery from the Chiruve Hills (30 miles from Fontesvilla) onwards is very picturesque; as one proceeds along the railway line and the formation works, which as a rule take the top of the ridge, you get occasional views through the trees of an undulating, well wooded and well watered country. In the distance towards the north are the mountains of Gorongosa, and nearer at hand to the south is the range of hills that forms the watershed between the Pungue and Busi rivers. Scenery.

The pathway from the 75 mile peg to Chimoio goes through woods and long grass about 8 feet high; at Douro's Kraal, 4 miles from the end of the formation, are the first signs of cultivation by the natives, and from here onwards one passes through occasional kraals. The country gets hillier and hillier from Chimoio towards Massikessi, and the horizon is bounded by mountains, conspicuous amongst which are, besides the Gorongosa range, the highlands of M'Combie's territory, the Manica range, and the elevated country where Mforga's and Goman's Kraals are situate.

Massikessi itself lies in a valley.

The country is considered suitable for growing cereals of all kinds, mealies especially, coffee, tea, and sugar-cane; it at Cereals, &c.

present produces wild coffee, kaffir corn, tobacco, and vegetables of all kinds; the oxen that have been down at Chimoio do well there, and sheep and goats are the ordinary live stock of the natives; fowls are very numerous.

Health.

Except on the railway, fever is not very prevalent, and where the ordinary rules of sanitation and moderation is observed people are healthy enough. This does not apply to the low-lying country between Fontesvilla and Chiruve, where it is next to impossible for anyone to escape fever.

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RUSSIA.

ST. PETERSBURG.

Mr. Howard to the Marquis of Salisbury.

My Lord,

St. Petersburg, August 16, 1892.

I HAVE the honour to transmit herewith a letter which I have received from Mr. E. F. G. Law, Commercial Attaché to Her Majesty's Embassy, enclosing his most excellent Report on Russian Agriculture, the famine which has caused so much distress in many provinces of this country during the past year, and the prospects of the coming harvest.

This report, which has cost Mr. Law most arduous labour during the best part of a year to elaborate, cannot, I feel sure, fail to meet with your Lordship's approval.

It not only deals with the primary object in view, which was to give the true facts concerning the terrible famine, which in some measure has temporarily crippled commerce in this great empire, but it is a general survey of Russian agriculture in such a condensed form and so clearly stated, that anyone can read and understand with interest and ease the several subjects discussed in this report, which must always remain a valuable work of reference on Russia.

I have, &c.

(Signed) HENRY HOWARD.

Mr. Law to Mr. Howard.

Sir,

St. Petersburg, August 15, 1892.

I HAVE the honour to submit a report on the conditions and prospects of Russian agriculture in their more important aspects, embracing the consideration of the causes and results of the recent famine, and of the prospects for the immediate future.

The extent of the distress caused by the failure of last year's harvest has forcibly attracted attention, both in this empire and abroad, to the overwhelming importance of agriculture, as the real basis of economical prosperity in Russia.

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The study of the conditions and prospects of agriculture, necessarily involves some consideration of the economical conditions which govern the existence of the Russian agricultural population. The fact that the rural population of European Russia alone, exceeds 80,000,000, and that it is spread over an area of about 90,000 square miles, sufficiently indicates the natural diversity and complexity of the numerous questions which present themselves. The endeavour has been made to keep this report within convenient limits of length, by directing attention more especially to the black soil region, the natural granary of Russia, which formerly produced some 60 per cent. of the total yield of cereals, and which to-day is suffering and poverty-stricken, as the result of a series of bad harvests. It would seem that, whatever may be the future development of industries other than agriculture, or of other provinces than those of the black soil, the general prosperity of the Empire in the immediate future, must depend on whether the condition of these black-soil provinces will continue to deteriorate, or whether there is a prospect of speedy recovery, and of a return to the days of satisfactory harvests.

Efforts to keep within suitable limits of space have led to the omission from notice of many points, which it would have been more satisfactory to have included; and this necessity of curtailment renders it particularly desirable that it should be remembered, that generalisation on Russian questions is, as a rule, most dangerous, and that remarks in this report, which refer more particularly to conditions in the provinces specially considered, should not be taken as necessarily applicable to the whole empire.

I have received from credible witnesses, who had travelled in the suffering provinces, many interesting, though piteous accounts of the distress which had come under their observation. I apprehend, however, that it is unadvisable to introduce anecdote in such a report as the present. There is always a risk that the description of particular suffering, may create an erroneous impression, as to the universal existence of the acutest forms of distress.

In the body of the report, I have endeavoured to do justice to the splendid generosity and self-sacrifice displayed by large numbers of the wealthier Russians, in their noble efforts to relieve the distress of their fellow-countrymen, but I would here add, that the stoical fortitude, and the sublime patience, displayed by the suffering peasantry, are equally worthy of the warmest admiration.

Patience and fortitude under misfortune have long been recognised as special virtues in the character of the "moujik." Never have these virtues been more effectively displayed than during the terrible trials of the last few months.

I have, &c.,

(Signed) E. F. G. LAW.

Report on Russian Agriculture and the Famine of 1891-92.

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Complexity
of economic
problems in
Russia.

The vast extent of the empire, the diversity of soil and climate, and the variety of races inhabiting different regions, are causes which give to every economic problem in Russia a complexity rendering it exceedingly difficult to pronounce positive opinions, or to present distinct issues, even on questions which appear superficially to be of the simplest nature.

Specially
marked in
agricultural
conditions.

In no case does this condition of complexity become more sensible, than in an attempt to form opinions on subjects connected with agriculture, and the prosperity of the agricultural population. Leaving out of consideration Finland, Siberia, the Trans-Caucasus, and Central Asia, as regions whose economic condition is naturally independent of the rest of the empire, and is of comparatively small importance in the whole system, it is proposed in this Report to

simplify the question by confining attention to what is shown on the map as European Russia.

Geographical and official European Russia comprises the 50 Governments of European Russia, and the 10 Polish Governments of the Vistula. This area contains about four-fifths of the total population of the empire, and yields some eleven-twelfths of the direct, and nearly seventeen-eightieths of the indirect taxation, and, consequently, it is on the fortunes of this section that the general prosperity of the whole empire must depend.

Even within this comparatively limited area, agriculture includes such diverse products as flax, oats, and hemp in the north; all the more valuable cereals in the rich corn lands of the south and centre; tobacco and maize in Bessarabia and other southern districts; rape and other oil seeds; luxuriant vines in the Crimea; beetroot, the staple for an important sugar industry, in the centre and west; and fine herds of cattle raised on the grass steppes of the Ukraine.

Of the varied fruits of Russian soil, by far the most valuable are the cereals, and as it was the failure of these, in the most important producing districts, which caused such wide-spread distress, special attention should be given to such questions as are connected with the consumption, production, and export of cereals.

The list of important cereals, concerning which more or less reliable statistical information is available, comprises rye, autumn and spring sown wheat, oats, barley, buckwheat, millet, maize, and peas. Figures showing the annual production of these cereals during the last four years, are to be found in the annexed table No. IV., which also shows the corresponding production of hay and potatoes. It has been impossible to obtain reliable data for estimating the value of all these products, but the approximate value of the crops of rye, wheat, barley, and oats are given in table No. I. It will be observed that this table shows an average annual value exceeding 1,100,000,000 r., or over 100,000,000*l.* sterling, for the four classes of grain tabulated, and it is probably well within the mark to say that the average annual agricultural production, of all kinds, in Russia exceeds 300,000,000*l.* sterling. With regard to the figures in these tables, it should be noted that quantities give a surer basis for estimation than values, the latter being too dependent on fluctuating circumstances in other countries. An example of such external influence is seen in the fact, that the value of the crops in table No. I. is greater for the year 1891 than for 1889, although the actual yield in the former year was less than in the latter. It must also be noted that the figures for 1888 are incomplete, returns not being included for the Polish provinces, which in subsequent years produced about 7 per cent. of the total grain crop, and the addition of which for 1888 would, therefore, add nearly 2 per cent. to the average quantity and value of grain production, taken for the last four years tabulated.

Attention in Russia has, however, of late years, apparently been so concentrated on the development, and protection of manufacturing industries, that agricultural interests have unfortunately been somewhat overlooked. The very grave results

of the failure of last year's harvest are, however, now forcing the conviction, even on unwilling minds, that agricultural prosperity is, and must for some time remain, the only solid basis of general welfare in the Russian Empire.

Importance
of agriculture.

In proof of the overwhelming importance of agriculture, it may not be out of place to give here a few figures, enabling a rough comparison to be instituted between the extent and value of mining and manufacturing industries, and of those which depend directly on the produce of the surface soil.

Poverty and
distribution
of mineral
resources.

Rich as are the mineral resources of certain districts in Russia, the mineral production of the Empire, as a whole, is very limited. Iron and coal are found in the south-east, towards the Sea of Azoff, and in Poland, both in sufficient quantities and in sufficiently accessible localities to promise a steady industrial development. In the Ural Mountains iron of excellent quality, and various other minerals, are found, but the desirable corresponding supply of coal, in the neighbourhood, is wanting, whilst the forests are very much exhausted, and the Urals are too far from the consuming markets of the world, to permit the expectation of a rapid development of mineral industry in that region. Gold is found exclusively in the Urals and Siberia, and petroleum practically exclusively in the Caucasus.

The following table, giving the approximate output in tons, in different districts in 1890, will give a rough idea of the geographical distribution of mineral wealth in the Empire:—

	Rolled iron.	Pig and cast-iron.	Copper.	Coal.
	tons.	tons.	tons.	tons.
Ural	220,226	871,548	2,761	245,532
South-east of Moscow	49,726	91,516	..	..
West and south-west of Moscow ..	32,532	238,581	..	..
Siberia	4,274	4,500	312	19,452
Poland	66,726	120,081	..	2,430,806
Northern Provinces.. ..	28,919	..	..	..
Caucasus	..	..	2,247	..
Moscow Basin	..	..	..	230,129
Don Basin	..	..	..	2,978,855

The figures given above do not include the production of iron in the various works and establishments belonging to the Government, which are chiefly situated in the Ural; nor do they include small quantities of coal, under 20,000 tons, produced in a few isolated districts. These omissions do not, however, affect the deduction to be drawn from the table, namely, that mineral wealth is almost entirely confined to districts lying towards the frontiers of European Russia, and that the great central plain is practically destitute of those mineral resources, in the absence of which, the population must necessarily depend almost entirely on agriculture, for the means of subsistence.

The following table gives the totals, in tons, of production of the more important minerals and metals, during the last five years for which such statistics are available:—

Production of minerals and metals.

	1885.	1886.	1887.	1888.	1889.
	tons.	tons.	tons.	tons.	tons.
Coal	4,202,867	4,506,346	4,464,174	5,016,353	6,118,551
Pig-iron	519,444	623,942	603,053	657,995	728,715 ¹
Rolled iron	356,730	357,441	363,740	357,344	421,232
Steel	189,940	238,086	222,025	218,833	264,726
Copper	4,649	4,500	4,913	4,533	4,725
Gold	33	33	34	35	37
Naphtha... ..	1,875,144	1,942,112	2,691,432	3,134,543	3,260,139

The consumption of iron in Russia is estimated at about 25 pounds per head of population.

Consumption of iron.

Of the total population throughout the entire Empire, which now approximates 120,000,000, it was calculated, in 1889, that about 847,000 were employed in various works and factories; 496,836 hands were employed in mining and other metallurgical industries, and of these about one-half were directly, or indirectly, engaged in the production of raw material, and the other half in various manufacturing processes.

Numbers employed in industries.

The total value of industrial production was estimated at approximately 130,000,000¹ sterling. The following list shows the comparative distribution and production of labour among the different classes of industries:—

Value of industrial production.

	Hands employed.	Value of production.
	Number.	£
Textiles	439,000	53,000,000
Food products, (flour, sugar, alcohol, dairy, &c.)	73,000	48,000,000
Metal working	113,000	12,000,000
Animal products, (soap, candles, &c.)	41,000	7,200,000
Wood-working, (saw-mills, &c.)	38,000	330,000
Chemical works.. ..	25,000	280,000

It is worth noting, in passing, how much of the above tabulated industrial production is dependent on the agriculture of the country for the supply of the raw materials required, and the few figures above quoted, should suffice to establish the superior importance of agriculture, in the economical system of the Russian Empire.

Turning to details connected with the agricultural production of the country, the harvest of 1891 requires special consideration. Table No. II. gives the production of cereals in 1891, for each of the provinces of European Russia, and also the totals for the 10 Polish provinces and for each of the three provinces of Cis-Caucasia. Potato production is also shown in this table, but the special design

Harvest of 1891.

of the table being to show the food supplies for the population, oat which are either exported or used for feeding horses, are omitted.

Food supply.

In making this estimate of the food supply yielded by the harvest of 1891, the basis has been adopted of $14\frac{1}{2}$ poods* of food grains required for each head of population, and the official assumption is accepted, that three poods of potatoes are the food equivalent of one pood of grain. It must be added that the rate of $14\frac{1}{2}$ poods includes the normal consumption for distillation, for alcohol.

The figures given in No. 2 column show the production on the basis of area adopted by the Ministry of the Interior, but other calculations allow for a probable increase of area of sowing, since the date taken as a starting point by that Ministry, and would appear to justify the larger estimate shown in No. 4 column.

Taking this larger estimate, it appears that in the 50 Governments of European Russia, the harvest of 1891 gave a deficit of about 59,000,000 poods, or nearly 1,000,000 tons less than the average food requirement of the population. It is, however, reasonable to suppose that under the combined influences of high prices, and the extreme poverty of the peasantry in the distressed provinces, the consumption in these districts would fall below the normal rate. A rate of consumption of 12 poods per head has, therefore, been assumed, and is shown in column No. 6, for the 16 distressed governments, which are consecutively named, from Voronesh to Ufa inclusive, and lower rates are also taken for the Governments of Archangel, Astrachan, and Vologda, where the grain crops are always poor, and where the population is accustomed to supplement its food resources by the products of the chase, fish and game. This probable diminution of requirement is taken into consideration in the final column, No. 7, of the same Table II. and the following results are there tabulated :—

Of the 50 Governments of European Russia, 17 produced a surplus over food requirements of about 199,000,000 poods, whilst the harvest in the remaining 33 Governments gave a deficit of about 258,000,000 poods. Taking, however, the 10 Polish, and 3 Cis-Caucasian Governments into account, the deficit of some 59,000,000 poods in the first 50 Governments, is changed into a surplus for the whole of European Russia of nearly 43,000,000 poods.†

Optimistic calculations.

It is the existence of this surplus which has led some optimists to declare that the distress has been very greatly exaggerated, and that, in fact, there has been no famine at all. It is generally easy to comfort oneself with figures, if the predetermination exists to extract consolation from them; but optimistic calculations do not alter facts, and no figures showing a general surplus of production above requirement, in the empire as a whole, could satisfy the necessities of those whose own crops had failed, and who had not the means to draw to their own doors, the surplus existing elsewhere.

* See Table IX.

† About ten days' supply of food for the whole population.

Further, before quitting the subject of surplus or deficit of **Export and stocks.** supply last year, it must be noted that the export of cereals, from 1st July to the end of the year, amounted to over 150,000,000 poods, and that, consequently, as far as home requirements are concerned, the surplus shown of 43,000,000 poods would have been turned into a deficit of over 100,000,000 poods, if there had been no stocks in the country on 1st July, 1891. The approximate amount of such stocks, the residue of more favourable years, is a figure which it is unfortunately impossible to estimate. No data exist for determining it, but that considerable stocks did exist, is evident from the fact that, throughout the whole winter and spring, there was no real difficulty, beyond high prices, in securing the large quantities of grain required by the authorities for relief distribution.

In this relation it is interesting to compare the prices now **Comparison of prices.** existing with prices in normal years. The following table comparing former and present prices in four of the more central, and great corn-producing governments, shows in a vivid light the result, as regards price, of last year's shortage, and it should be borne in mind that with the cessation of purchases for relief account, and the approach of a new harvest, there has been a great fall during the last few weeks. Thus, whereas the average price of rye in the country is now but little over 1 r. a pood, the large purchases made by the authorities for relief distribution, averaged a price of about 1 r. 30 c. per pood.*

	Koursk.		Tamboff		Pensa.		Voronesh.	
	Rye.	Wheat.	Rye.	Wheat.	Rye.	Wheat.	Rye.	Wheat.
Average price per pood (1881 to 1887).	61	101	63	96	68	89	61	99
Price in June, 1892...	105	120	90	110	113	...	110	125

There is an apparent contradiction between these high prices, **Contradiction in figures.** one of the acute signs of distress, and the fact as shown above that, allowing both for export and stocks in hand, last year's harvest was probably fairly sufficient for the needs of the population. Special reasons must be sought for such apparent contradictions, and to find these, the condition of the sixteen Governments specially affected, must be more closely considered, both as regards the actual yield of grain last year, and in the immediately preceding years, and also as regards their general economical condition, independent of the results of a single season.

As shown in Table II., the total produce of food grains and **Great deficit in rye.** potatoes, in these sixteen Governments, fell short of the required food supply by some 175,000,000 poods, even at the reduced allowance of 12 poods per head, and if the normal rate of 14½ poods is allowed, this deficit is increased to 257,000,000 poods.

* The average price in Central Russia in normal years is about 60 copecks. Rye from the new crop is selling now (August) at about 80 copecks.

Such a deficit affecting a population estimated at some 35,500,000, or over one-third of the population of European Russia, as shown in Table No. II., is in itself a serious disaster, but the fact that the chief failure was in the rye crop, and that rye is the main staple of food of the Russian peasant, made it particularly severely felt. The extent of shortage in the rye crop may be judged from the following statement, showing the proportion of the yield in 1891 to the average during the years 1883 to 1887:—

	Percentage.
Voronesh	75
Kazan	67
Tamboff	65
Simbirsk	64
Orenburg	58
Penza	55-60
Riazan	55-50
Tula	55-50
Nijni-Novgorod	45-40
Samara	45-40
Saratoff	34
Koursk	29
Orel	18
Viatka	13
Ufa	3

Total deficit
compared
with average.

Turning to Table III. it will be seen that, taking the chief cereals, rye, wheat, oats and barley, the average crop for the fifty Governments of European Russia, during the last six years, has been about 257,000,000 tchetverts. As this period includes not only the exceptionally bad crops of 1889 and 1891, but also the exceptionally good crops of 1887 and 1888, the average of the whole term gives a very fair standard for the general productiveness of the country. From this standard the yield in 1891, of the crops named, fell short by some 50,000,000 tchetverts, and the figures in the table referred to, show that very nearly the whole of this deficiency occurred in the sixteen specially afflicted provinces. [Unfortunately, no data are available for giving this table in a measure of weight. The tchetvert is a measure of capacity, which though sometimes arbitrarily fixed by local custom, is generally different not only for each kind of grain, but even varies for the same kind of grain, according to the quality produced in different districts.]*

Food supply
per head in
distressed
provinces.

The remarkable incidence of calamity on the sixteen Governments, is again evidenced in a different form, by the figures in Table No. VI., which shows the yield during the last three years of the principal cereals, as reckoned per head of population, and compares these results with the average for the whole of European Russia and Poland. Considering these figures from the point of view of food supply, oats must be deducted, and making this deduction, last year shows a considerable falling off in the crops, compared with 1889, itself a very bad year, and a still greater falling off from 1890, which for the whole country was little better than an average.

The section specially affected includes the Governments of Voronesh, Viatka, Kazan, Koursk, Nijni-Novgorod, Orenburg, Orel,

* See Weights and Measures, p. 32.

Perm, Penza, Riazan, Samara, Tula, Saratoff, Simbirsk, Tamboff and Ufa, and comprises nearly the whole of the famous black-soil territory of East-Central Russia. Except where these provinces include a portion of the mineral-producing districts of the Ural, it is practically the surface of the soil alone which affords the means of subsistence to a population exceeding 35 millions; and, unfortunately, not only is the industrial scope thus limited by nature, but in these provinces, science, thrift, and industry are specially, and sadly wanting in the methods and habits of the agricultural peasantry.*

Agriculture
the only
occupation in
black-soil
country.

Serious as was the harvest failure of 1891 to the peasants of the black-soil country, it would not by itself have reduced them to their present deplorable condition. Taking the whole of European Russia, the harvest of 1886 was an average, 1887 and 1888 combined, were some 25 per cent. above average, 1889 was about 13 per cent. below average, and 1890 about 4 per cent. above. Making, however, a similar comparison for the sixteen Governments, it will be seen from Table III. that, with the exception of a slight check in 1890, there has been a steady falling off throughout the last six years. This decrease continued, even when the rest of Russia enjoyed the extraordinarily abundant harvests of 1887-1888, and it culminated in the disaster of 1891. Thus the yield of the territory which should produce more than half of the crop of cereals in the fifty European Governments, fell from 54·87 per cent. of the whole in 1886, to 39·17 per cent. in 1891. Similar results, in a different form, are shown in Table No. V., which gives details for the yield of each province, whilst Table No. VI., already referred to, shows the actual deficit in food supply per head of population, during the last three years of the series. The natural result of such a continuance of misfortune, was the steady exhaustion of all the material resources of the peasantry, and it was this previous exhaustion which rendered them powerless to contend against the final blow of last year's complete failure.

Steady
deterioration
on black soil.

Exhaustion
of peasants'
resources.

Climate, the conditions of land tenure, and the system of levying taxes, all appear to have combined to undermine the energy of the peasant, and to arrest effort at improvement. The climate is such, that where there is no other occupation than tillage of the soil, six months are passed in enforced idleness. There is nothing more certain than that constantly recurring periods of idleness surely create a general disinclination to work; and in Russia such distaste for work is further fostered by the numerous holidays (Saints' days, &c.), numbering some ninety-five† in the year, and all religiously observed, although many of them fall in the busiest agricultural season.

Numerous
holidays.

* The agricultural population, as distinguished from the inhabitants of all classes in the towns, in the sixteen distressed Governments, is approximately 92½ per cent. of the whole. For the fifty Governments of European Russia, the proportion rural is about 87½ per cent. These proportions are calculated from the totals for the population year 1885, and though the totals have since increased, the percentages cannot have changed materially.

† Local custom sometimes increases the number even up to 150.

Communal
system of land
tenure.

The land given to the serfs at the time of the emancipation is held under the communal system, and is the property, not of the individual, but of the village commune, which, in most parts of the country, and invariably in the now suffering Governments, periodically redistributes it among its members. As a rule, the arable land is divided into three sections. Each peasant gets his share in the first two, of which one is reserved for autumn sowing with rye or winter wheat, and the other is sown in the spring with one of the various spring crops. The third section is not tilled, but lies fallow for the year. This is called the "three-field" system, and the rotation is regularly maintained—fallow, autumn sowing, spring sowing.

The land is charged with certain taxes, for which the commune is collectively responsible, and the incidence of which is taken into account at the periodical revisions of distribution. The periods of redivision are fixed by the peasants themselves, varying in different parts of the country, in many districts being annual, whilst, in some, terms of five years, and even longer, are customary.* As a rule, an honest endeavour is made to divide the land fairly, according to its quality and productiveness, and proximity to, or distance from, the village. But this attempted fairness of division itself produces an evil result, for where the land to be divided includes, as is generally the case, several varieties of soil, each peasant claiming a share of the better portion, is forced to take also his share of the worse. The incidence of taxation is equally heavy on all kinds of land, and consequently a lot includes a number of small scattered strips, some often at such a distance from the village that to work them at all is barely profitable, and the idea of carting manure to them is out of the question.

Peasants
bound to the
land.

Again, the peasant who should seek by the expenditure of his labour or capital to improve his land, knows that the benefit would accrue, not to himself, but to the neighbour to whose lot it may fall at the next redivision, and further, if by hard labour and thrift, he succeed in regularly paying his own share of taxation, he is still liable, and likely to be called on to contribute, to make good the defalcations of his less satisfactory neighbours. The only chance of extrication from this slough of despond, would lie in quitting the commune, and abandoning all rights and obligations in connection therewith. But the chance of doing this is very rarely offered. Communal land is inalienable. Freedom from the obligations connected with it, can only be obtained by the consent of the commune, which, in its collective capacity, remains equally liable for the share of a departing member as, for the shares of those who remain. It can easily be understood, therefore, that the more prosperous an individual may be, the more difficult it is made for him to abandon his membership of the commune; and the

* Unfortunately the theoretical advantages of local administration are counterbalanced by the fact, that communal decisions are too often governed by a lazy numerical majority, to whom frequent redistribution of the land offers a premium on laziness.

commune is provided by law with ample and effective power to retain its members. It is here that the passport system comes in. Every man in Russia must be provided with a passport, which must be annually renewed through the authorities of his village. When the commune refuses to forward the necessary documents, the absentee, who may be earning a good livelihood away from his village, is obliged immediately to return, to avoid arrest for the criminal offence of having no legal status.

It would be wrong to close these reflections on the communal system without adding that it has, not only its apologists, but even its admirers, among a formerly large class of political economists in Russia. Economists of this school declare that, as long as the inalienability of the land, and the forcible connection of the peasant with his village is maintained, Russia will escape the ills suffered by the rest of Europe, through the formation of an unmanageable proletariat. They also point with pride to the existence in Russia of a complete system of local self-government, a thing which her Western neighbours are seeking to establish; and they say that the democratic influences of such institutions, are wholesomely controlled by the counterbalancing sentiment of conservatism, engendered by ownership of the soil.

It would be out of place in this Report to devote time and space to a serious consideration of all the arguments advanced, respectively, by the admirers and detractors of the communal system. The object here in view is to discover the causes of the present distress, and whatever advantages may be claimed for the commune, some, at least, of the causes of the agricultural crisis can be clearly traced to its influence. Facts appear to support the view that, under the commune, ambition and initiative in the individual are crushed out, and hope of material betterment, to be gained by personal exertion, is extinguished.

A remarkable example, in confirmation of this view, is furnished by the German colonies on the Middle Volga. These colonies were founded by immigrants invited by the Empress Catherine, and only twenty years ago they were remarkable for their extraordinary prosperity. In the year 1872, however, the special system of self-government, under which they had flourished for somewhat over a century, was abolished, and they passed under the same institutions as the surrounding Russian peasants. The practice of frequent, and even annual, redistribution of the land was introduced, and from that time the decline in the prosperity of the colonies became so rapid, that to-day the colonists are as poor as any of their neighbours.

Circumstances seem to have combined to force on the peasant inhabitants of the great central agricultural plain, the rôle of thriftless, fatalistic gamblers with Providence. The peasant's stakes are heavy. He risks the means of subsistence for himself and family, for twelve months, on the chances of seasonable alternations of rain and sunshine. He lives on the hopes of recurring good seasons, and his great aim is to bring as much land under the plough as possible, and with this idea the gambling spirit often

Passport system.

Arguments in favour of communal system.

Facts against.

Example of German colonies.

Gambling tendency in form of agriculture.

induces him to hire land, from neighbouring proprietors,* at rents which can only pay in exceptionally favourable seasons. The same staple cereals are sown over and over again. If the weather answers, a rich harvest brings momentary plenty, with a minimum of effort and forethought. But no savings are accumulated in prosperous years, all the eggs are in one basket, and a likely mischance causes a terrible crash.

Want of
variety in
crops.

The introduction of greater variety in the crops on the black soil would be most beneficial. Not only would it diminish the risks now blindly incurred by the cultivation of cereals alone, but the land would profit by more frequent change, and some of the superfluous labour, now often a drug in the market, might find remunerative occupation, with crops requiring more attention than cereals. Far, however, from any disposition to vary cultivation, the tendency of the peasant is in the other direction. Even the growth of such useful vegetables as cabbages, onions, and gherkins, is often neglected, and the peasant has to supply his requirements by buying the produce of other provinces, inhabited by a more thrifty population. If, however, his grain crops have failed, he has no money, and he must then do without the vegetables, which should constitute an important part of his ordinary diet.†

Vegetables
bought and
not grown for
food.

Cattle raising
abandoned.

Reasons for
abandonment.

Cattle-rearing is also being given up, and though there are no available satisfactory statistics on the subject, all authorities are agreed that the numbers both of cattle and sheep have enormously decreased in the last few years. One reason for this diminution is the continual ploughing up of grass lands, under the influence of the fatal tendency already mentioned, to trust to luck to secure the larger immediate profits of a possibly abundant grain harvest. Another obstacle to cattle raising is the constantly increasing subdivision of the land. Where the land is all cut up in narrow strips, it is impossible to keep cattle from straying into, and damaging, the corn crops, and those who have given up keeping cattle, naturally bring great pressure on their neighbours, to force them to do the same. But perhaps the strongest of all the influences which are causing the disappearance of the cattle herds, is the fact that the cattle can readily be turned into money, either by the peasant himself to supply his own immediate wants, or by the tax-gatherer, who can conveniently seize and sell cattle, to satisfy the terrible debt due to the Government, by nearly every peasant on the black soil.

Scarcity of
manure.

The disappearance of cattle, particularly where artificial manures are unknown, means also the absence of means to maintain the fertility of the soil. In addition, therefore, to other reasons already given for neglect of the practice of manuring, there is also the difficulty of the scarcity of material.

* Proprietors justify their demand for high rents by the fact, that if the crop fails, the peasants are unable to pay, and they frequently get no rent at all. When the crop is good, the landowners consider themselves entitled to such a share of the profit as may cover losses in bad years.

† The number of deaths from scurvy during the last twelve months is probably not far short of the number from typhus.

Some Russian agriculturists maintain, it is true, that the natural fertility of the black soil is still such that manure is unnecessary. The general falling off of production would seem to controvert this theory, although, when the climatic conditions are exceptionally favourable, abundant crops are still occasionally produced on unfertilised ground. At all times, however, when comparison can be made with a carefully-worked estate, belonging to some large proprietor, it will be found that the yield of the land thus cared for, is very superior to that obtained by the surrounding peasantry, who neglect to make any return to the soil for the fruits extracted from it, and this difference in favour of careful cultivation is particularly to be remarked in bad seasons.*

Black soil
requires
fertilisation.

In all matters connected with tillage, care of the land, and selection of suitable crops, the absence of any considerable number of resident landlords, by the example of whose more enlightened methods the peasant proprietors might profit, is a great loss. Unfortunately, in most parts of the country, the large proprietors are generally absentees, whose sole interest in their estates is confined to the amount, and early date of the remittances to be obtained from their local agents. Before the abolition of serfdom things were otherwise. Not all resident proprietors were benefactors to the peasantry around them, but in general there was a close connection and a sympathy between the great landlords and their peasant neighbours which has now almost ceased to exist. Whilst this misfortune is recognised, no remedy is suggested. An estrangement between the two classes, who would largely profit by close relations and mutual goodwill, appears to be one of the necessary results of the establishment of a peasant proprietary.

Ill effects of
absenteeism.

It is not only in the matter of the want of example and sympathy, that absenteeism has proved an evil, but when the proprietors were resident on their estates, their daily wants, of a higher standard than those of the peasantry, led to the training of a number of peasants in such arts as were required to enable these wants to be supplied. Capable smiths, carpenters, masons, and other craftsmen, were formerly to be found in most villages, where their services were required by a rich resident proprietor, whereas now one of the obstacles to improvement is the non-existence of such a class. The absence of employment for skilled labour has led to its disappearance, and the peasant is more and more thrown back on field labour, as the only resource for obtaining a livelihood.

Disappearance of
craftsmen.

The household industries of the women too, received desirable encouragement, when a market for their handiwork was provided by the presence of resident families. In general, village industries, which included not only the furnishing of some of the more luxurious wants of the proprietors, but the supply of important ordinary household requirements, such as coarse linen for the peasants themselves, and also a certain trade with the provincial towns, have now fallen into decay. Improved communications

Decay of
village
industries.

* Deeper ploughing by the proprietors is probably also a factor in establishing this result.

bring cheap cotton and other manufactured goods to the peasants' doors; and, when they have money in hand, it appears simpler to buy, than to spend long hours in tedious work to supply themselves. The result is that habits of idleness grow quickly, and the peasant has nothing to sell but the produce of his fields, so that, when the harvest fails, he has no money to meet the demands of the tax-gatherer, or to purchase the most ordinary necessities for his family.

Arrears of
taxation.

Under such circumstances arrears of taxation grow rapidly, and they now reach alarming figures. In Table VII. are shown the present amount, and the growth of arrears in each of the sixteen distressed governments, and the totals are compared with similar totals for the remaining provinces of European Russia. From this table it will be seen that, whilst the total of arrears for the whole of European Russia and Poland amounted, on January 1, 1892, to 89,000,000 r., over 71,500,000 were due by the distressed governments, and that the debt per head, which for the whole country was only 99 c., had reached 2 r. 3 c. (a little over 4s.) in the black soil provinces. Further, it will be noted that during the last four years the debt has been steadily increasing in these provinces, and that the increase during that term has been about 130 per cent.

Other debts.

But the debts thus tabulated by no means include the whole liability of the unfortunate peasants. There are also local taxes which must be paid, and as, when matters are pushed, the claims of the central Government always takes precedence, it is certain that the amounts due to the *semstvos* and other local authorities must be very considerable. Further, beyond arrears of taxes of all kinds, a new debt has now been incurred for the advances made by the Government during the last few months for famine relief. This liability alone, as shown in Table VIII., amounts to over 120,000,000 r. Finally, if the impossibility of meeting in full, the assessment for the current year be taken into account, it is evident that 250,000,000 r. is not an excessive estimate of the sum which will be owing by the peasants of the sixteen provinces at the end of this year. This, for the population concerned, means a debt of over 14s. per head, and though all who know the Russian peasantry are seemingly agreed that it would be mistaken kindness to forgive them these debts, it is difficult, particularly in view of the present exhausted condition of the country, to believe in the possibility of the extinction of the burden.*

System of
levying taxes.

It is maintained by some competent authorities that the system of levying the Imperial taxes has in itself evil results, tending to increase the impoverishment of the peasants. The system pursued is to demand payment in cash the moment the harvest is over, and failing payment, to seize and sell any available property. The share of communal land, the house and certain things considered as absolutely necessary for existence dependent on agriculture, are however, specially exempted by law from such seizure.

* A circular has been issued (August 10th) by the Minister of the Interior, authorising the repayment in kind of the advances made for famine relief.

Formerly taxes were collected in kind, but this is said to have led to administrative abuses, and money payments were introduced as a reform. The end of the harvest season is, however, with the poorer, and indeed with the great majority of the peasants, the time when they are almost certain to be penniless, and quite unable to meet the inexorable demands of the tax-collector. They are consequently obliged either to hurry their grain for sale to a market which is speedily glutted, or to borrow from the village usurer. In either case they are at a disadvantage. Either unwarrantably low prices must be accepted for the grain, or exorbitant interest must be paid for the money accommodation. In either case the village usurer, the hated but powerful "koulak," generally profits by the necessity of the peasant, and manages to secure unreasonable profits. The village usurer.

High interest for petty loans is not the only trouble in connection with the payment of taxes. The koulak frequently profits by the ignorance of the peasant to make him give receipts for money never lent, and in other fraudulent ways increases his legal liability. The petty local authorities, too, are sometimes accused of taking advantage of the peasant's helplessness to make illegal demands, and such unjust claims may even lead to the seizure of property. Under pressure of various kinds, there is too often temptation to sell horses in autumn, to realise necessary cash, and save the expense of winter keep, and to trust to luck to provide the means to buy in spring, the horses then absolutely required for field work. The result of such proceedings, is that horses are sold far below the value in autumn, and can only be procured at exorbitant prices in spring, whilst too frequently the means of purchasing cannot be found, and the peasant's fate is then sealed. Pressure of indebtedness.

The following case, though doubtless one of exceptional hardship, will well illustrate the nature of the troubles which beset the peasant. Certain members of a commune, having failed to pay their taxes and proved recalcitrant, the local authorities made a descent on the village, and to satisfy their claims seized the property of a number of villagers who had already paid their own share of taxation, but remained collectively liable for the debts of their less satisfactory neighbours. The seizure was illegally conducted, and the victims complained to the central Government. Forced sales and high interest. In their petition they stated that one man, to save his cattle, compounded for a payment of 50 r., which sum he had to borrow at 5 r. per month interest. Two cows and an ox, valued by a second at 100 r., were seized and sold for 50 r. 75 c., and in addition he had to pay 4 r. in cash. The cow of a third was seized and sold for 20 r., and in addition he had to find 40 r., which he was obliged to borrow at 5 r. per month interest. A fourth stated that, besides the forced sale of his property, he was called on to pay 50 r., which he borrowed on the security of the wheat he had sown; and a fifth had two horses and three cows, which he valued at 350 r., seized and sold for 53 r. and 40 c. The peasants' valuations of their property may have been exaggerated, but otherwise the facts are well authenticated.

Here, too, the country would appear to suffer from the absence of a resident proprietary of superior class. If individuals of such a class were living among the peasantry, they would surely be able and willing to afford them considerable protection, both from the fraudulent exactions of the koulaks* and from the undue severity of petty officials.

Liquor laws. The system regulating the sale of spirits is practically that of local option. With certain special exceptions, such as in villages

Local option. having a very large population, or where some important factory exists, the direct permission of the communal council is required, both for the establishment of a liquor shop in any particular house, and also for the licence to the particular individual who desires to undertake the business. Under such regulations, the very considerable profit to be made by the sale of spirits naturally leads to large sums being paid for the licence,† but as the law forbids the commune to sell its permission, such transactions are always of a clandestine nature. This secrecy not rarely leads to considerable corruption in the affair of granting a licence, for it is well worth the while of the intending publican to pay a good deal to secure, or maintain his licence; and as the commune, as a body, cannot publicly sell its permission, the money is given to certain influential members who can carry its decisions. The koulak, who frequently takes up the business of publican, in addition to money-lending, is often able, with the aid of claims in connection with his usury business, to influence sufficient votes in the communal council to obtain the licence, contrary to the real wishes of the majority of the villagers. By similar unscrupulous methods, the successful publican will sometimes prevent the opening in a neighbouring village of a liquor shop, which might interfere with the monopoly, for which he has paid heavily, but which brings him in enormous profits.

**Corruption in
licensing
system.**

**Reputation
for drunken-
ness.**

The establishment of a monopoly leads to the supply of an inferior article, and the spirits sold in the villages are often of the worst and most fiery description. This fact, and the resulting effect of a comparatively small quantity of liquor on the consumer, helps to create the entirely erroneous impression that the ordinary Russian peasant is a heavy drinker.‡ As a matter of fact, statistics show that the consumption of spirits, per head of population, is not large in any part of Russia, and it is smallest in those very provinces of the black soil, where the people have the worst reputation for drunkenness.

Consumption In Pensa, Tamboff, and Saratoff, three Governments of the

**Comparison
of koulak and
Jew.**

* In the western provinces of the Jewish Pale, the Jew usually takes the place of the Russian koulak, both as a spirit dealer and as a money lender, and much of his unpopularity among his Russian neighbours may be attributed to this fact. It is, however, curious, that in the Jewish Provinces the rate of interest for small loans is far lower than in the rest of the Empire. The Jewish population, though as a whole very poor, includes more small capitalists among its numbers than are to be found among the Russians, and their competition among themselves, for the profits of money lending, effectually keeps down the rate of interest.

† As much as 10,000 roubles has been paid for a single village.

‡ It must be admitted that when the peasant does drink, he is liable to forget moderation.

black soil, the consumption of spirits is from .57 to .59 gallon of spirits per head; in the Governments of Wladimir and Tver, where there is a considerable development of manufacturing industry, the consumption is from .65 to .78 gallon per head; in the Baltic provinces, which have a comparative reputation for sobriety, the consumption is from .70 to .78 gallon per head, and in some of the western provinces it reaches .99 gallon per head. The value of the spirit itself is small, but the heavy excise and license dues, bring the price up to five or six times the cost of the liquor. The Government will sometimes receive as much as 1,000 r. on Revenue from the licence for a single village, and the average for the last two spirits years, of the total revenue derived from spirits, has exceeded 25,000,000*l.* sterling.*

The heavy percentage claimed by the Government, naturally makes the peasants' expenditure on spirits large, in comparison Peasants' expenditure. In the Governments of Pensa and Tamboff (black soil) the drink bill per head amounts to about 4*s.* 6*d.*, whilst the taxes of all kinds, in the same Governments, amount to about 6*s.* per head.

In considering demands on the peasants' purse, another item Losses by fire. must also be taken into account. The damage caused by fire in the 50 Governments of European Russia, in the year 1887 (the latest for which such statistics are available) amounted to upwards of 6,500,000*l.* sterling, and of this sum, according to the average calculated on the 10 years, 1878-1887, as much as 78 per cent. fell on the rural population. Taking the figures of 1887 as a basis, the peasants' loss by fire was 65 c., or about 1*s.* 4*d.* per head, and it is stated that the annual damage by fire has increased during the last few years. The loss was proportionately greatest in Heavy losses in black soil provinces. the purely agricultural provinces of the black soil, not only because of the greater percentage of rural population, but also because of the greater frequency of fires. In the Government of Tamboff alone, the amount exceeded 350,000*l.*, and when, the very small value of the individual peasant's property is considered, this figure is really enormous. The Government of Pensa appears to have been the greatest sufferer, the losses per head for all classes of the population, there reaching 1 r. 25 c., whilst the Governments of Tamboff and Riazan follow close with 1 r., 20 c., and taking all the agricultural provinces, including the sixteen distressed Governments now specially considered, the loss by fire is certainly over 2*s.* per head.

The heavier incidence of loss by fire, in the provinces of the black soil, is accounted for, partly by the greater heat and dryness of the climate, partly by the greater proportion of agricultural population, who, as a rule, are more careless than townsmen, and perhaps chiefly, by the special carelessness of the inhabitants of these provinces, and the semi-superstitious awe with which they Peasants' helplessness. regard the calamity. There is no proper organisation for dealing with fire in most of the villages, and when fire breaks out, it is no

* More than one-fourth of the total ordinary revenue.

uncommon occurrence for the inhabitants to declare that it is the will of God, and to refuse to make the smallest effort to save their property.

Danger from
large villages.

A cause which, more or less throughout the whole of Russia, increases the risk of fire lies in the fact that, generally (and always in the black-soil districts), the separate farm system with its isolated dwellings is unknown. The communal distribution of land, renders impossible the selection of a site which shall be permanently convenient, by its proximity to the land to be tilled. In that respect all sites for the peasant's house are equally good, and consequently dwellings are crowded together in enormous, closely packed villages, such as are unknown in other countries, and when a fire breaks out, the disaster too easily assumes most serious proportions.

Statistics
show poverty
on black soil.

As might be expected, the test of statistics proves that the force of such circumstances and conditions, as have been described, has told with special severity against the agricultural population on the black soil, and the consideration of a few more figures establishing this conclusion may not be without interest.

Turning again to Table VI. it will be seen, that in the year 1889, the yield per head, in six of the sixteen provinces now suffering from famine, was below the average for the whole of European Russia and Poland, and that, notwithstanding the fact that these sixteen include the finest natural soil in the empire, and that many of the remaining Governments cannot, by reason of unsuitable climate, or other adverse circumstances, grow the more important cereals. In 1890 the difference was still further accentuated; nine of the sixteen Governments then fell below the general average, and in 1891, only two, Orel and Tula, exceeded the average, whilst the great majority were very far below it.

It has already been pointed out from Table VII. how great is the excess of arrears of taxation in the black soil provinces, as compared with the rest of the country, and it may here further be noted that whilst in 1891, the arrears in the sixteen provinces reached about 2 r., 35 c. per male head of population, the rate for thirteen northern semi-agricultural Governments* was only 35 c. per head, and whilst for the sixteen Governments the arrears were 82·8 per cent. of the assessment, they only amounted to 10·5 per cent. for the thirteen northern provinces mentioned.

In this short sketch of the conditions and prospects of agriculture in Russia, many questions have necessarily been omitted from consideration, either because the data available are insufficient to permit of their presentation in brief and clear form, or because it is to be feared that complexity and multiplicity of detail would only confuse the general perspective, in a rough survey, confined within the limits indicated by the nature of this report. Enough has probably been said to establish the supreme importance of agriculture in Russia, and to show that many influences prejudicial to the prosperity of agricultural industry have long been

* Yaroslaff, Vladimir, Tver, Viatka, Kostroma, Kaluga, Vologda, Smolensk, Pskov, Vitebsk, Novgorod, and Olonets.

at work, and that these influences have told most heavily in the black-soil region, and quite account for that impoverished and exhausted condition of its inhabitants, which was the primary cause of the distress experienced on the failure of last year's harvest. We may now turn to the consideration of the manner in which that distress was met and alleviated.

It was not until late in the autumn of last year, that the extent of the disaster which had overtaken the eastern, and east-central provinces, was fully appreciated in St. Petersburg, and it naturally took some time to collect the precise information required for calculating the necessary measure of relief, and a further delay was involved in organising a system for its distribution. The problem which the Government had finally to face was to find the means of supplying a deficit of food to 35,500,000 of people, in sixteen provinces where the production of foodstuffs had fallen short of the minimum requirement by 175,000,000 poods (as shown in Table II.) and where the peasantry had practically no resources but in the fruits of agriculture. The unavoidable delays in commencing relief were certainly unfortunate, and it was not till the end of the year that a regular system of distribution was established.

Details concerning the relief afforded during the first five months of this year, having been officially published, it is now possible to review the measures taken to meet the crisis. In Table VIII. will be found a summary of the quantities of grain distributed between December 1 and May 25, old style (June 6). In supplies for food and seed together about 67,500,000 poods were distributed during this period, and a little over 11,000,000 poods were, at the end of May, still in the hands of the authorities ready for distribution, making in all, as nearly as possible, 1,250,000 tons of grain provided by the Government for the necessities of the people.

The sums assigned by the Treasury for the purchase and delivery of this grain amount to a total of 120,664,000 r., or, approximately, 12,000,000*l.* sterling. It is not quite clear, from the official statement, whether the whole of this amount has already been actually expended, but owing to the unavoidably high price at which the grain was bought (averaging about 1 r. 30 c. per pood), it is not likely that there can be any balance of importance. The purchase of grain was, however, not the only Government measure of relief. Considerable public works were authorised, for which 10,000,000 r., or say, 1,000,000*l.* sterling, was assigned, and for the continuation of which further sums are now required. The great railways too, both Government and private, were made to assist, not only by lowering freight rates, for the carriage of whatever was required by the distressed provinces, but also in the case of two important private companies (the Moscow-Riazan and Moscow-Koursk), by being forced to undertake immediate, and very considerable new road building, in the suffering districts. And finally, special assignments have, from time to time, been made by the Treasury

Famine relief.

Government
distribution
of grain.

Government
expenditure.

Assistance
from railway
companies.

for hospitals and medical assistance, to combat the spread of diseases produced by hunger, and for the furnishing of horses, to districts where there were none left to do the spring ploughing.

Organisation
of relief.

With regard to the distribution of grain, it must be borne in mind, that, as already stated, the relief afforded by the Government was granted in the form of loans, which the recipients entered into formal obligations to repay, and was only given to those peasants who, in virtue of their proprietary share in communal land, had at least an appearance of security to offer. It is difficult to generalise on the manner in which relief was distributed, as the entire control was left in the hands of the local authorities, and the quantities given, and the arrangements for distribution, varied not only in different districts, but also at different periods in the same district. One noteworthy fact is, however, immediately apparent. From December 1 to May 25 is approximately six months, and even reckoning at the reduced rate of 12 poods per annum, as required for subsistence, the quantity of grain furnished for food (44,728,000 poods) could only feed 7,500,000 out of the total population, exceeding 35,500,000, in the distressed provinces. The total deficit of the crops in these provinces has, however, been shown to have exceeded 175,000,000 poods, which is equivalent to the food requirement, for the same period, for nearly 30,000,000 people; and consequently, as far as Government supplies of grain are concerned, some 23,000,000 of the inhabitants were left unprovided for.

Numbers not
provided or.

The question then arises, where was food found for these 23,000,000 hungry mouths? It may at once be stated that, although great suffering from insufficiency of food was almost universal, and sickness caused by such suffering carried off enormous, though unknown, numbers, there is no reliable evidence, recording cases of actual death directly due to starvation. A large number of those who were unprovided for, either by the yield of last harvest, or by Government relief, must have been fed from reserve stocks carried over from former years. The amount of such stocks, in the provinces concerned, has been estimated at 51,000,000 poods, and supposing the whole of this quantity to have been consumed by those who had stored it, or those who had money to buy from them (including an urban population of about 3,000,000), there was still a deficit of about 79,000,000 poods. It appears, therefore, that some 13,000,000 people must have been fed by private charity, or have lived on such savings as were effected by the forced reduction of the average consumption below even the assumed minimum of 12 poods per head, per annum.

Inadequacy
of private
charity.

Although the amount of private charity was very considerable, it was naturally trifling in comparison with the needs of so large a population, and if actual starvation has been avoided, the average quota of nourishment must have been brought considerably below even the assumed reduced standard of 12 poods, and the reserve stocks must have exceeded the estimate of 51,000,000 poods.

Private charity contributed through so many channels that it is impossible to make any accurate calculation of the amount

contributed. The largest sum was collected by the Special Committee, under the Presidency of H.I.H. the Cesarewitch. This Committee must have collected something near 12,000,000 r., or, say, 1,250,000*l.* sterling; the bulk of the money being the proceeds of two State authorised lotteries, of 5,000,000 r. each. The next most important contribution was that from the United States, amounting, up to July 1, to 179,418 r. (say 18,000*l.*), in addition to the handsome donation of 727,000 poods of grain and flour, which, at the usual average price in this country for breadstuffs, may be valued at a minimum of 581,600 r., or nearly 60,000*l.* From England, too, notwithstanding certain disadvantageous circumstances under which the subscription was started, approximately 40,000*l.* was received, up to July 1.* Other sums received from England, concerning which full details are not available, included remittances to Count Tolstoi, and sundry minor contributions; a successful local collection was also made by a Moscow English Committee.†

Amounts of
private
subscriptions.

The sum, however, of all contributions of this nature, cannot have exceeded 15,000,000 r., which, converted into food, would give about 12,000,000 poods of grain, or, as a maximum (at the 12 pood rate), nourishment for six months for about 2,000,000 sufferers. But this was by no means all that was done by private philanthropy. No estimate can ever be formed of the value of the liberal assistance directly afforded by Russian proprietors interested in the distressed provinces.‡ Sufficient praise can hardly be bestowed on the magnificent self-sacrifice and devotion displayed by numbers, not only of provincial residents of the wealthier classes, but also by numerous individuals of the ordinarily non-resident aristocracy, who, besides opening their purses, braved infection, fatigue, and discomfort, in their efforts to succour their fellow countrymen.

Russian
philanthropy.

It is sad to realise that, after such splendid sacrifices, both on the part of the Government and of private individuals, millions of people must still have been struggling on the verge of starvation for the last six months. The figures quoted sufficiently establish that, making every allowance for the existence of unestimated stocks and for local charity, at least one-third of the population must have subsisted for the last half-year on an allowance, which cannot have exceeded half the ration ordinarily considered as the minimum requirement.

This calculation may be put in clear form as follows:—

Statistics of
acute distress.

* Of this amount the Society of Friends collected about 30,000*l.*

† Some additional sums have since been received both from the United States and from England.

‡ One lady devoted no less a sum than 60,000 r. to the assistance of the peasantry on her estates in the Government of Saratoff.

	Poods.	Poods.
Food requirements. 35,500,000 people. 12 months		
at 12 poods .. .. .	.. ..	426,000,000
Supply from harvest 1891	253,500,000	
Stocks (estimated)	51,000,000	
Government loan of Grain	45,000,000	
Government reserves in hand for distribution	12,750,000	
Charity (estimated equivalent of subscription)	12,000,000	
Total recorded supplies	-----	374,250,000
Deficit compared with requirement (at 12 pood rate) .. .. .	.. ..	51,750,000

That is to say, that if the deficit be decreased, by reducing, during six months, the allowance of 12,000,000 people to 3 poods per head* instead of 6, and a saving of 36,000,000 poods be thereby effected, there would still remain a deficit of 15,750,000 poods, or nearly $\frac{1}{2}$ pood per head, to be made good by local (unestimated) charity, and by any excess of stocks beyond the estimated 51,000,000 poods.

Relief works.

In the foregoing considerations, no account has been taken of the relief afforded by public works. The fact is, that however excellent the intentions with which they were started, it was impossible that they should produce much immediate benefit, and the disaster was of such nature that immediate assistance was what was required. The period of acute distress for the bulk of the suffering population was in those winter months, when almost all outdoor work is unavoidably at a standstill. Relief work is necessarily conducted out of doors. The only work possible, consisted in the preparation and transport of materials—such as timber, stone, and sand. Several thousand men were employed at such work, and four or five thousand were taken down to the Caucasus for the construction of the chaussée along the Caucasian shore of the Black Sea.† But the number thus provided for was only a drop in the ocean, which could not materially affect the above comparison of supply and requirement. Indeed, the diminution in requirement was probably more than counterbalanced by the fact that a numerically important section of the population (including the majority of the 3,000,000 town inhabitants) will surely have consumed the ordinary allowance, exceeding the 12 pood rate, and, as far as they are concerned, will have created a deficit of two or three million poods beyond that here calculated.

As already stated, all details of arrangements in connection with the distribution of Government relief were left to the local authorities. Relief being in all cases given by way of loan only, those who had no security to offer, that is, the most necessitous class in the country, received nothing. It has been explained that

* If three poods was the average for so many millions, large numbers must have failed to obtain even this minimum.

† In May and June, many thousands left to seek harvest-work in Cis-Caucasia, encouraged by the issue of free railway passes by the Semstvos. Although the harvest to be gathered was most abundant, the numbers who sought work were excessive, and the returning crowd of peasants (for the most part with empty pockets) are now spreading cholera in every direction.

this restriction was considered necessary in the moral interest of the peasantry, but, in view of the numbers left unprovided for, such necessity cannot but be regretted. No comprehensive statement has as yet been published showing what measure of relief was apportioned to families and individuals. No fixed, or even general, rule appears to have permanently guided this apportionment, but it would seem that the original estimate of requirement was based on a rate of 30 lbs.* of flour per head per month, excluding, however, from all share, able-bodied men and infants under three. The estimated monthly requirement, as shown in Table VIII., was 9,587,000 poods, or at the 30 lbs. rate, 12,782,666 rations, that is to say, provision for a trifle over one-third of the population.

Government
apportion-
ment of relief.

That this rate varied considerably, and was not maintained even up to the end of May, is shown by the following statement, derived from official sources, of quantities distributed:—

MONTHLY distribution of Grain in Poods.

January.	February.	March.	April.	May.	June.
poods. 5,854,000	poods. 11,584,000	poods. 9,917,000	poods. 4,699,000	poods. 7,874,000	poods. 4,927,000

The periods noted under the monthly headings are of four weeks each, with the exception of February, which, taking six days from January and March, is five weeks, and June, which includes two weeks from May 25 to June 8. All these dates are old style. The quantity distributed in May, if taken at the 30 lbs. per head rate, would barely feed 10,500,000 people, or about 2,250,000 less than the original estimate was calculated to provide for. This diminution of relief appears the more remarkable in view of the certain increase of necessity, as the stocks of those who started with something of their own, necessarily became exhausted. But it is not only in the totals of distribution that irregularity is manifest. There is positive evidence that in some districts the rate of relief was reduced to 20 lbs. per head in May, and that a further reduction to 10 lbs. was intended to be made in June. It is difficult to account for this diminution. The statement, often made, that as the season advanced the peasants who chose to work would be able to find remunerative employment, can hardly be accepted as sufficient reason for the reduction. Relief was only granted to those who had a share of communal land, and it is, therefore, clear that the recipients of Government assistance were precisely those who were bound, when the season arrived, to devote their time and labour to the cultivation of their own land, and consequently could not sell their labour to others. It may be that

Irregularity
of relief.

Diminution in
May and
June.

* Equal to 27 lbs. English.

a more satisfactory explanation exists, but a comparison of the amounts supplied in the different provinces, suggests the idea that the measure of relief depended greatly on the individual characters of local Governors, and on the interest displayed by influential proprietors in securing assistance for their own particular districts.

Distribution
of seed.

Table VIII. shows that the estimated requirement for seed was over 36,600,000 poods, and that the quantity supplied up to May 25 was 22,596,000 poods. Since that date, and up to June 8, there was a further distribuion of 1,020,000 poods, and on the latter date there were still 3,060,000 poods prepared for distribution. The total, therefore, of seed distributed is only 26,676,000 poods, or fully 25 per cent. less than the estimated requirement. Again an explanation is required, and it is suggested that, owing to difficulties in distribution, it was impossible to deliver in time to all outlying districts, and also that, owing to the loss of horses and various requisites for cultivation, the area sown has been reduced.

Insufficiency
of communi-
cations.

Notwithstanding such shortcomings as the foregoing considerations would seem to indicate, the enormous task of distribution was, on the whole, well performed. The natural difficulties of dealing with such large quantities, were enhanced by the fact, that no previous similar disaster had necessitated the establishment of an organisation fit to cope with the undertaking. The immense area over which operations were extended was another difficulty, and finally the insufficiency of communications at all times, and the complete interruption of all communication, except by rail, during the thaw towards the end of March, combined to give herculean dimensions to the task before the Russian Government.

The consideration of the great sacrifices involved in the measures taken to relieve distress; of the sufferings experienced since last harvest; and of the condition of complete exhaustion into which a large section of the country has fallen, shows how important has become the question of harvest prospects, not only for this year, but also for the next few years to come.

Future
harvest
prospects.

The harvest yield in any particular year may depend chiefly on atmospheric conditions, but the average of a series of harvests is dependent on more stable factors, some of which are capable of exercising permanent influence, even over such apparently uncontrollable elements as climatic variation. The generally unsatisfactory condition of agriculture, as conducted by the peasants, has already been discussed. The means of effecting improvement are of two classes: those which depend exclusively on legislative enactments, and those which depend on the energy, initiative, and example of the authorities, and of private individuals suiting their action to the necessities of particular localities. The former would deal with such matters as reforms in the communal system, the licensing system, fire prevention, and insurance, &c. The latter would seek to raise the general standard of agriculture, and by such works of public utility as forest planting and irrigation, to ameliorate the conditions under which it is carried on.

There is no lack of proposals under either head. Reforms by

legislation will necessarily require time for consideration and elaboration, and such conflict of opinion has been manifested since the present crisis forced their discussion, that it is vain to consider here the effect of proposals which may never be put in practice, and which, in any case, cannot produce immediate results. On the subject of evils to be combated by material undertakings, there is more agreement. In the first place, there is a general consensus of opinion that the climate of the black-soil region has deteriorated, and that this deterioration, taking the form of severe, prolonged, and frequent droughts, with scorching hot winds, and general severity of climatic condition, is chiefly due to the extensive destruction of forests.

Climatic
change in
black-soil
region.

In all parts of the world the destruction of forests is recognised as having a serious effect in reducing the average rainfall. In the south-east of Russia this effect is likely to be exaggerated. East of the Volga mouth lies the great desert of the Kirghiz Steppe, and to the west is the desert region inhabited only by Kalmucks, and separating the Caucasus from the Volga and Don territories. It is stated that formerly there were large belts of forest on the black soil, and on its borders, which not only held and attracted moisture, but also broke the force of the fierce desert winds. Now there is hardly a tree to be seen, and these winds, piercingly cold in winter, and scorchingly hot in summer, burst with their full fury on the great alluvial plain. In summer the fiery blasts are capable of drying up and withering the growing corn in a few days,* and the sand storms are so heavy that thousands of acres of crops have frequently, and indeed in this very year, been choked and buried in a carpet of sand, which in a few hours will turn fertile lands into permanent desert. In winter there is nothing to hold the snow, which is equally liable to be caught up and blown away, leaving the autumn-sown seed exposed to the frost, or to be drifted into enormous heaps, which in spring create temporary torrents, cutting up the soft soil, and washing away acres of tillage. The formation of these torrent beds is one of the greatest causes of mischief, for the resulting harm is not confined to that done during the process of their formation, but is continued by their tendency to widen every spring, and to carry off all moisture, before it has had time to soak into the soil.

Forest
destruction.

Desert winds.

Torrent beds.

There are no meteorological records available to prove the diminution of rainfall, or to establish the rate of decrease, but the fact of the increasing inadequacy of moisture is sufficiently attested by the diminishing volume of the rivers, and by the more frequent recurrence of harvest failure attributable to drought, as also by the steady process of transformation of fertile lands into sandy wastes. Enormous damage has been already done, and energetic measures are required to prevent further evil. Forest planting and irrigation are the most evident remedies, and some attention has already been given to these both by some enlightened proprietors and in connec-

Want of
moisture.

Possible
remedies.

* Even a few hours sometimes suffices for most serious damage.

tion with the Government Famine Relief Works. Planting and irrigation are, however, very costly, and require time to produce effect, but there are immediate palliatives which should be within the command of every peasant. It is the lightly-tilled, unmanured soil which suffers first and most from drought, and better tillage and manuring offer the palliatives which, in bad seasons, would save much.

Small hope of immediate improvement.

As regards effects on harvest prospects for the immediate future, there is, unfortunately, but little more to be anticipated from the palliatives which the peasants might adopt than from the more ambitious undertakings of planting and irrigation, or from legislative enactments. Some improvement it may be hoped will be produced by the example and energy of those proprietors who have been roused to a sense of the danger, but it has been previously explained that the communal system, custom, and prejudice are serious obstacles in the way of the improvement of peasant agriculture. Without improved implements, and good horses and cattle, better tillage is impossible, even where the desire to attempt it exists; and, unfortunately, the peasants as a rule have no money to buy better implements, no skill to make them, and the famine has carried off such numbers of horses and cattle, that many will find it difficult to plough their fields, whilst the means of refertilising them will be scarcer than ever.

Loss of horses and cattle.

It is impossible to arrive at an even approximate estimate of the numbers of horses and cattle which either perished from want, were killed for food, or were sold at immense sacrifices, from the distressed governments, to more prosperous provinces. In the Government of Kazan, according to the official report of a relief inspector, out of 42,000 horses in one district, only 16,000 were left two months ago, and in the Saratoff Government, the Semstvo has reported that, in three districts, about one-fourth of the inhabitants were left without the animals necessary for field work, and that from 2,000,000 head in May, 1891, the number of horses and cattle had been reduced to 825,000 by January of the present year.* These are probably examples of special calamity, but throughout the whole suffering area, the loss has been very considerable, and such cases as those quoted must bring the average up to a most serious figure.

Reduction of area sown.

The great loss of horses must, it would seem, have had a certain prejudicial effect, in causing a reduction of the area sown for the coming harvest. Such reduction is likely to have been further increased by late delivery of government-supplied seed, owing to the great difficulty of distribution over so extensive an area. Further in connection with the supply of Government seed, a circumstance which must prejudice this year's yield is the fact that the seed was necessarily bought by agents in bulk, and without that very careful selection of the best quality of grain, and of the proper sorts to suit varying local conditions, which is essential to produce the best result.

Quality of seed supplied.

* In 1887 the number of horses in Russia was estimated at 20,867,768; horned cattle at 27,922,657; sheep at 48,220,119; and pigs at 10,742,074.

The information collected and published by the Central Government up to the end of June, now renders it fairly possible to form an idea of what is likely to be the actual result of this year's harvest, though there is still time for a few days' scorching wind, or other exceptionally unfavourable influence to do considerable damage. From these published reports, and from private information of later date it would seem that the winter crops, owing to drought last autumn and again this spring, have failed in the provinces of Riazan, Saratoff, Podolia, and Kieff; that they are indifferent in the six governments of Tula, Kursk, Voronesh, Kharkoff, Pultava, and Kherson; are about an average in the eight governments of Tver, Viatka, Orel, Tchernigoff, Ekaterinoslav, Tauride, Simbirsk, and Astrachan; partly good and partly average in different districts of Vologda, Perm Pskoff, Tamboff, Pensa, Nijni-Novgorod, Bessarabia, Kazan, Volhynia, Wilna, Kovno, and the three Baltic provinces; and quite satisfactory in ten of the Polish provinces, and in Samara, Orenburg, and Ufa, besides in some unimportant northern governments.

Reports on
winter crops.

To appreciate the significance of this statement it must be remembered that, as shown in Table IV., the winter crops should give about one-half of the total cereal production of the 50 governments of European Russia, and a still greater proportion in the sixteen governments which are now suffering. It must also be borne in mind that the number of governments in one class or another, is only of relative importance as regards total production; it is only by considering the average yield of each province with its classification, that a correct impression of the general result can be obtained. An examination of the tables from this point of view will show that in the first-class (good), three governments, Samara, Orenburg, and Ufa, are very important; in the second class (damaged in certain districts), six governments are of first rank, namely, Perm, Tamboff, Pensa, Nijni-Novgorod, Bessarabia, and Kazan; in the third class (average) are the five important governments of Viatka, Orel, Ekaterinoslav, Tauride, and Simbirsk; in the fourth class (below average) are the four very important governments of Kieff, Riazan, Saratoff, and Podolia; and of equal importance in the fifth class (bad), are Tula, Kursk, Voronesh, Poltava, Kharkoff, and Kherson. As regards prospects for the sixteen governments, specially affected last year, three of them will be found in the first class, five in the second, three in the third, two in the fourth, and three in the fifth, and with these last five it will certainly go very hard next winter.

Proportion of
winter crops.

Importance of
different
Governments.

Prospects of
distressed
Governments.

The general conclusion to be drawn from the above classification, is that the harvest of rye and other winter grain will, as a whole, be decidedly below average.

Concerning the prospects for spring-sown crops, the information as yet available is not so precise, as also there is more time for change before the harvest. The general tenor of reports is, however, to the effect that the crops suffered severely in the more important parts of the country from the drought which lasted up to the middle of May, but that the copious rain which then became

Prospects of
spring crops.

pretty general, immensely improved the position, so that, on the whole, the yield now promises to prove even a good average.*

Public grain
stores.

In connection with the subjects discussed in this report, there is another question which requires some special consideration, namely, that of the reserves of grain, which it is provided by law should be maintained, but which were not forthcoming in due quantity, when last year's harvest failure produced a sudden and heavy demand.

Laws on grain
reserves.

A very old decree ordains, that every commune shall maintain a permanent stock of rye, or wheat, equal to $1\frac{1}{2}$ tchetverts per member, and in addition, one-half tchetvert of either oats or barley. This stock should be under the superintendence of the "mir," and no loans should be made from it without the formal consent of the "mir" assembly. It is said that formerly such stocks were fully maintained, and it is probable that in the days of serfdom the large proprietors took efficient measures, in their own interests, to protect these reserves. It is difficult to trace the history of the changes which in course of time have either been deliberately made, or have crept into the original system. The

Contributions
in money.

most important of such changes was undoubtedly the one by which the peasants, who originally contributed in kind to maintain the stocks, were given the option, under certain conditions, of paying the money value of their contribution. This doubtless appeared at the time to be a wise reform, and with its introduction the semstvos were made responsible for the supervision of the grain reserves of the "mir," and the money funds were placed entirely in their charge. The result, however, has not proved such as was anticipated. The "mir," probably influenced by a feeling of diminished responsibility, became negligent of the duty of keeping the granaries full, and it is stated that some semstvos, seeing the great necessities in their districts for useful works, which could not be accomplished without an expenditure of money they were at a loss to find, drew for such purposes on the reserve sustenance fund which was under their control. In short, the system broke down completely, and when the pressing need declared itself many "mirs" did not even possess a granary, and many semstvos had no funds. In the sixteen distressed Governments, there were in December last year, in the public warehouses, for both food and seed, only about 12,500,000 poods, instead of the quantity, probably approximating 100,000,000 poods, required by the law, and the sum in cash at the disposal of the semstvos was quite insignificant.†

Failure of
system.

It should be added that, in addition to the public granaries and the semstvo funds, the central Government should theoretically have been in a position, in case of serious necessity, to come to the

* Later reports are less favourable. Locusts, drought, and hot winds, have caused much damage to the grain crops generally. Millet, of which abnormally large quantities were sown this spring, is, however, exceptionally good, and so are potatoes.

† It is said that even as regards the nominal obligations of the peasants to contribute to maintain reserves, no account has been taken of increase of population since the date of the original law on the subject.

aid of the famished population. In the days of serfdom the Government, by means of a special tax on the peasantry, had established a fund for the express purpose of meeting any urgent overwhelming demand such as the present. It is difficult to discover what the exact amount of this fund may once have been, but had the original regulations been respected, the amount should always have been fully maintained, for all drafts on it, should have been limited to the purpose of providing loans, repayable in prosperous seasons. That these regulations, however, were not respected, is proved by the fact that, in the budget report for the current year, the finance minister expressly stated that on January 1, 1891, the fund only amounted to 7,531,500 r., and that the whole of this sum had been required during the first six months of that year, that is, even before the distress was really severely felt.

The fund of the central Government, having once disappeared, there are no means of reconstituting it, for the peasants are certainly not now in a position to make fresh contributions. With regard to the "mir" granaries, and the semstvo funds, some effort will probably be made to restore them, or to find some better arrangement for the same purpose. The system of accepting money contributions is generally pronounced to have been a failure. Besides difficulty of collection it is urged that, when money is given instead of grain, although at the time the one may be the fair equivalent of the other, yet when it becomes necessary to feed the people, grain is likely to be so dear that the funds in hand will no longer purchase the quantities of grain which they represent. Various proposals have been put forward to meet the evident difficulties of the case, and one which has already been tried in some districts with considerable success, is to make each commune set aside a portion of its land for joint cultivation by its members, and for the authorities to take the entire produce of that portion, and out of it to pay all taxes and other liabilities of the commune, and also to set aside the quantity required to maintain an adequate reserve in the public granaries.

Before closing this Report, attention must again be drawn to the fact, that the vast extent of the Russian Empire, and the variety and complexity of condition under which agriculture is pursued in different provinces, renders it impossible, as a rule, to make general statements. On most questions, when detail is approached, the exceptions exceed the rule, too often to permit of generalisation. In the preceding pages the conditions studied are, as expressly stated, especially those of the black-soil region, and it must not be assumed that remarks which, in many cases, apply only to those provinces, are intended to apply to the whole Empire.

E. F. G. LAW.

P.S.—Inquiries made during a recent tour in the agricultural provinces, show that the average rent for corn land is about 10 roubles per dessiatine, or under nine shillings an acre. Land on which specially exhausting crops are sown, such as flax and

sunflowers, is charged at a higher rate. As an almost universal rule the land is let for three years, with the condition that the three-field system must be adhered to: that is, that one-third of the land must lie fallow during the whole period.

It is generally reckoned that land fairly cultivated should give an average return of five per cent. on its capital value. Considering the ordinary rates of interest prevailing in Russia, this would appear to be a very moderate profit to the investor.

E. F. G. L.

N.B.—As regards statistics given with this report, it should be observed that figures in different tables, although relating to the same subjects, have often necessarily been drawn from different and independent sources, and although every effort has been made to sift and reconcile discrepancies, some inexplicable divergencies may still be noticed.

COMPARISON OF RUSSIAN AND ENGLISH WEIGHTS AND MEASURES.

1 pood Russian	= 40 pounds Russian.
1 pood Russian	= 36 pounds English.
62 poods Russian	= 1 ton.
1 dessiatine Russian	= 2½ acres (approximately).

In the St. Petersburg Export Market:—

1 tchetvert of wheat	= 10 poods.
1 tchetvert of rye	= 9 poods.
1 tchetvert of barley	= 8 poods.
1 tchetvert of oats (heavy)	= 7 poods.
1 tchetvert of oats (ordinary)	= 6 poods.

1 rouble (paper circulation)	= 100 copecks.
1 rouble (at present exchange)	= 2 shillings (approximately).

Table I.—VALUES of Production and Export of principal Cereals.

—			Approximate Rouble Value Total Production.	Quantities exported. Foods.	Rouble Value of Exports.
1886.					
Rye..	..	..	No data	65,023,000	47,550,000
Wheat	..	..		86,656,000	90,715,000
Oats..	..	..		34,631,000	26,457,000
Barley	..	..		41,258,000	25,953,000
				227,588,000	190,675,000
1887.					
Rye..	..	..	No data	77,553,000	54,363,000
Wheat	..	..		130,619,000	140,041,000
Oats..	..	..		61,016,000	40,686,000
Barley	..	..		58,541,000	34,668,000
				327,729,000	269,758,000
1888.					
Rye..	..	..	518,000,000	105,961,000	66,928,000
Wheat	..	..	410,000,000	211,744,000	220,409,000
Oats..	..	..	232,000,000	87,890,000	55,025,000
Barley	..	..	98,000,000	79,296,000	47,221,000
			1,258,000,000	484,891,000	389,583,000
1889.					
Rye..	..	..	430,000,000	81,530,166	53,496,049
Wheat	..	..	217,000,000	180,072,258	182,484,950
Oats..	..	..	228,000,000	69,412,795	44,770,692
Barley	..	..	68,000,000	62,413,218	35,894,302
			943,000,000	393,423,437	316,645,993
1890.					
Rye..	..	..	564,000,000	76,905,882	51,056,544
Wheat	..	..	274,000,000	182,085,036	179,432,227
Oats..	..	..	292,000,000	51,781,649	35,454,462
Barley	..	..	112,000,000	60,692,580	36,284,849
			1,242,000,000	371,465,147	302,228,082
1891.					
Rye..	..	..	491,000,000	67,938,000	59,871,000
Wheat	..	..	212,000,000	176,059,000	186,022,000
Oats..	..	..	191,000,000	45,955,000	31,742,000
Barley	..	..	105,000,000	45,947,000	31,785,000
			999,000,000	335,899,000	309,420,000

The year 1888 includes only the production of the 50 Governments of European Russia.

The years 1889, 1890 and 1891 include also the 10 Polish Governments.

Table II.—HARVEST Yield and Requirement, 1891.

Government.	Population.	Net yield in poods, Seed deducted.			Average require- ment, at 14½ poods per head.	Requirement in poods on short allowance.	Surplus or Deficit in pood requirement.
		All Grain and Peas (Oats excluded).	Potatoes.	Total with correction for increased Area sown. 3 poods potatoes = 1 pood grain.			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Archangel	342,767	732,542	132,818	793,481	4,970,122	2,742,136	-1,948,655
Astrachan	854,883	3,029,335	109,456	3,231,987	12,395,804	6,839,064	-3,607,077
Vologda	1,293,418	12,623,637	840,436	12,903,752	13,754,561	12,984,180	-30,398
Voronezh	2,714,917	3,737,134	587,068	4,095,249	39,366,296	32,579,004	-28,483,755
Viatka	3,089,725	23,828,102	4,182,153	25,380,875	44,076,012	36,476,700	-11,115,825
Kazan	2,246,601	5,128,064	686,361	5,340,184	32,575,714	26,959,212	-21,619,028
Koursk	2,490,237	22,686,071	3,261,684	30,662,801	36,108,436	29,882,844	+779,957
Nijunovgorod	1,579,254	10,976,887	6,747,242	13,225,968	22,890,183	18,951,048	-5,723,080
Orenburg	1,383,355	1,114,337	2,959,290	2,101,367	20,058,648	16,600,260	-14,498,893
Orel	2,137,879	18,790,699	11,990,070	22,787,389	30,999,246	25,654,548	-2,867,159
Penza	1,600,524	9,830,800	3,268,213	10,920,204	23,207,598	19,206,288	-8,286,084
Perm	2,847,587	25,412,055	682,320	25,639,495	41,290,012	34,171,044	-8,531,549
Riazan	1,958,193	10,803,418	8,421,176	13,010,477	28,321,298	23,488,316	-9,827,839
Saratov	2,698,457	13,562,511	186,353	13,624,629	39,127,626	32,381,484	-18,756,855
Simbirsk	2,446,245	20,626,391	233,625	20,704,266	35,470,552	29,354,940	-8,650,674
Tamboff	1,655,231	8,948,350	1,413,726	9,419,592	24,000,850	19,862,772	-10,443,180
Toula	2,865,960	20,956,788	5,340,565	22,737,976	41,556,420	34,391,520	-11,653,544
Ufa	1,497,788	11,017,195	11,267,838	14,773,141	21,717,926	17,973,456	-3,200,315
Bessarabia	2,061,192	18,216,273	738,560	18,462,460	29,887,284	24,734,304	-6,271,844
Vilna	1,695,762	63,926,395	1,389,487	67,236,395	24,588,549	..	+42,704,977
	1,406,441	14,549,114	11,764,137	18,570,493	20,393,384	..	-1,822,901

Table II.—HARVEST Yield and Requirement, 1891—continued.

Government.	Population.	Net yield in poods, Seed deducted.			Average require- ment, at 14½ poods per head.	Requirement in poods on short allowance.	Surplus or Deficit in pood requirement.
		All Grain and Peas (Oats excluded).	Potatoes.	Total with correction for increased Area sown. 3 poods potatoes = 1 pood grain.			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Vitebsk	1,365,173	10,701,928	8,180,039	13,428,608	19,795,008	..	- 6,366,400
Vladimir	1,473,721	15,520,203	6,659,272	17,730,960	21,363,954	..	- 3,628,994
Volhynia	2,461,142	34,684,548	13,360,587	41,922,376	36,686,559	..	+ 6,235,817
Grodno	1,439,564	13,127,719	11,714,414	18,694,898	20,873,678	..	- 2,178,780
Don district	2,077,100	59,773,171	1,015,804	60,117,772	30,117,950	..	+ 29,999,822
Ekaterinoslav	1,717,219	46,432,491	1,813,712	58,123,698	24,899,676	..	+ 33,224,022
Kaluga	1,255,494	10,277,616	8,326,160	13,053,003	18,201,663	..	- 5,151,660
Kiev	3,182,785	50,458,466	7,351,280	52,908,893	46,150,382	..	+ 6,758,511
Kovno	1,613,390	19,140,939	8,247,825	21,890,214	23,394,155	..	- 1,503,941
Kostroma	1,400,357	20,082,844	7,841,781	22,696,271	20,305,176	..	+ 2,391,095
Courland	704,767	12,102,979	7,842,664	16,812,929	10,219,122	..	+ 6,593,807
Livonia	1,266,967	16,254,124	15,742,760	22,234,919	18,371,022	..	+ 3,863,897
Minsk	1,858,626	18,656,699	27,365,791	27,923,078	26,950,077	..	+ 978,001
Mogilev	1,416,796	11,364,445	17,393,537	18,273,131	20,543,542	..	- 2,270,411
Moscow	2,258,728	9,360,557	12,020,858	13,367,510	32,751,556	..	- 19,384,046
Norvorođ	1,278,850	12,612,635	7,132,127	14,990,011	18,543,325	..	- 3,553,314
Olonez	362,197	2,355,915	1,266,601	3,012,588	5,251,856	..	- 2,239,268
Podolsk	2,638,609	42,004,692	5,861,341	43,953,472	38,259,830	..	+ 5,693,642
Poltava	2,918,123	53,310,708	5,249,466	60,489,992	42,312,784	..	+ 18,171,208
Pskov	1,043,595	13,595,678	6,434,529	17,427,905	15,132,128	..	+ 2,295,777
St. Petersburg..	1,677,376	6,417,119	8,978,714	9,410,024	24,321,952	..	- 14,914,923

(8285)

C 3

Table II.—HARVEST Yield and Requirement, 1891.—continued.

Government.	Population. (1)	Net yield in poods, Seed deducted.			Average require- ment, at 14½ poods per head. (5)	Requirement in poods on short allowance. (6)	Surplus or Deficit in pood requirement. (7)
		All Grain and Peas (Oats excluded). (2)	Potatoes. (3)	Total with correction for increased Area sown. 3 poods potatoes = 1 pood grain. (4)			
Smolensk	1,408,616	15,312,548	10,536,133	20,172,433	20,424,932	..	-252,499
Taurida	1,258,098	28,314,086	356,081	29,085,361	18,213,421	..	+10,871,940
Kharkov	2,465,157	28,914,921	2,153,672	29,632,812	33,599,776	..	-6,966,964
Kherson	2,288,544	42,706,134	2,871,073	52,784,392	33,183,888	..	+19,600,504
Tchernigov	2,286,926	21,798,233	5,915,372	24,599,598	33,160,427	..	-8,560,829
Esthonia	409,338	6,504,090	18,993,953	12,535,408	5,935,401	..	+6,900,007
Jaroslav	1,098,664	13,682,585	11,331,518	17,459,761	15,930,628	..	+1,529,133
Tver ..	1,822,049	17,545,898	8,415,349	21,836,638	26,419,710	..	-4,583,072

Table II.—HARVEST Yield and Requirement, 1891—continued.

Government.	Population. (1)	Net yield in poods, Seed deducted.			Average require- ment, at 1½ poods per head. (5)	Requirement in poods on short allowance for nineteen Governments. (6)	Surplus or Deficit in pood requirement. (7)
		All Grain and Peas (Oats excluded).	Potatoes. (3)	Total with correction for increased Area shown. 3 poods potatoes = 1 pood grain. (4)			
17 Governments with surplus	28,017,896	522,694,990	134,821,827	604,058,753	408,256,593	..	+ 198,592,117
*19 Governments on short allowance.	35,218,145	225,636,675	61,916,244	253,466,073	510,663,101	..	- 175,517,754
15 other Governments with deficit.	26,011,546	225,485,304	129,736,920	375,601,171	377,167,415	..	- 82,375,007
Result for 51 Governments	89,247,387	973,816,969	326,574,991	1,133,125,997	1,294,087,109	1,192,426,641	- 59,300,644
Polish Provinces	8,540,334	82,811,400	150,833,200	133,089,133	123,834,843	..	+ 9,254,290
Stavropol ..	700,346	27,405,831	86,796	27,434,763	10,155,017	..	+ 17,279,746
Kuban ..	1,509,877	87,835,248	3,307,874	88,457,873	21,893,216	..	+ 66,564,657
Terek ..	790,154	20,054,491	444,679	20,202,717	11,457,233	..	+ 8,745,484
Grand Total	100,788,098	1,191,423,939	481,307,540	1,402,310,483	1,461,427,418	..	+ 42,543,533

* The food requirements for the 16 distressed provinces are calculated at the reduced rate of 12 poods for the year. In view of the large consumption of fish and game in the Governments of Archangel, Astrachan, and Vologda, at the reduced rates of 8 poods for the first two and 10 for the latter.

† The Government of Koursk, although suffering so severely in many districts, that it was included in the 16 specially distressed provinces, which received Government relief, nevertheless, produced, as a whole, a small surplus, and is, therefore, in this table, included also in the 17 Governments with a surplus.

Table III.—COMPARATIVE Harvest Results in Tchetverts.

	Yearly Totals in Distressed Provinces.	Yearly Total for 50 Governments, European Russia.	Percentage of Yield of Distressed Provinces to Total Harvest.
1886.			
Rye	68,087,933	111,264,100	..
Wheat	10,885,096	27,443,800	..
Oats	57,430,481	95,629,000	..
Barley	4,511,438	22,411,400	..
Total	140,914,948	256,748,300	54·87
1887.			
Rye	64,971,431	124,948,300	..
Wheat	10,595,474	46,792,800	..
Oats	57,234,242	103,817,200	..
Barley	4,335,709	28,180,200	..
Total	137,636,856	303,738,500	45·31
1888.			
Rye	61,619,898	118,644,491	..
Wheat	12,062,362	49,649,344	..
Oats	50,106,086	91,353,482	..
Barley	3,547,927	26,495,957	..
Total	127,336,273	286,143,274	44·50
1889.			
Rye	51,629,700	92,603,400	..
Wheat	13,149,500	29,967,000	..
Oats	46,353,300	82,156,700	..
Barley	3,956,800	19,416,000	..
Total	115,089,300	224,143,100	51·34
1890.			
Rye	57,154,600	113,065,700	..
Wheat	10,554,200	35,759,000	..
Oats	46,432,900	90,813,900	..
Barley	3,860,700	27,396,400	..
Total	118,002,400	267,035,000	44·19
1891.			
Rye	32,696,500	83,776,300	..
Wheat	5,367,200	28,393,000	..
Oats	30,814,800	71,996,500	..
Barley	2,493,400	23,567,500	..
Total	71,871,900	207,733,300	39·17

N.B.—The tchetvert is a measure of capacity which, though sometimes arbitrarily fixed by local custom, is generally different not only for each kind of grain, but also for the same kind of grain, according to the produce in the district.

Table IV.—YEARLY Production and Exports—Cereals, Potatoes, and Hay (Poods).

	1888.			1889.			1890.			1891.		
	Yearly total for 50 Governments, European Russia.	Yearly total for 10 Govern- ments, Poland.	Exports.	Yearly total for 50 Governments, European Russia.	Yearly total for 10 Govern- ments, Poland.	Exports.	Yearly total for 50 Governments, European Russia.	Yearly total for 10 Govern- ments, Poland.	Exports.	Yearly total for 50 Governments, European Russia.	Yearly total for 10 Govern- ments, Poland.	Exports.
Rye ...	821,754,578	No data.	108,159,000	594,390,500	40,211,600	78,909,000	7-4,734,500	52,478,500	74,115,100	511,547,800	45,458,400	67,938,000
Winter wheat ...	329,211,148		214,141,000	445,094,500	12,059,800	178,935,000	103,051,500	16,376,000	173,611,000	71,875,200	16,101,000	176,059,000
Spring wheat ...	279,211,933		87,890,000	154,890,900	214,300	64,681,000	146,507,400	28,926,100	47,274,000	12,231,400	23,361,100	45,955,000
Oats ...	369,592,239		79,888,000	317,526,400	12,618,500	60,810,000	359,656,200	18,508,500	98,774,000	25,478,300	23,367,500	45,947,000
Barley ...	165,601,494		2,049,000	107,491,800	7,362,800	1,372,000	168,189,100	2,326,500	1,235,000	139,179,600	11,979,500	1,383,000
Buckwheat ...	49,103,896		708,000	48,650,900	3,260,800	24,344,000	50,301,000	1,663,700	349,000	27,060,300	2,791,400	816,000
Millet ...	81,195,307		22,709,000	48,027,700	1,533,300	24,344,000	29,434,000	3,701,100	18,706,000	51,164,300	1,410,300	23,238,000
Maize ...	33,192,036		6,444,000	16,787,900	2,263,600	4,066,000	3,701,100	7,307,100	3,107,000	45,440,400	...	6,385,000
Peas ...	28,769,634			17,650,100			19,637,200			14,853,900	4,765,000	
Grain ...	1,948,078,383	No data.	519,385,000	1,348,520,800	79,624,800	413,027,000	1,708,061,500	120,688,100	377,134,000	1,226,792,700	106,178,900	372,691,000
Total for 60 } Governments }		No data.			1,428,145,600			1,828,749,600			1,332,971,600	
Potatoes ...	344,332,068	No data.	...	360,930,100	223,961,400	...	389,844,800	245,488,900	...	326,098,100	150,832,200	...
Hay ...	No data.	No data.	...	860,496,847	19,068,952	...	623,094,248	59,688,898	...	482,832,711	50,985,988	...

Table V.—HARVEST Results in Tchétverts.

—	Voronezh.	Viatka.	Kazan.	Kursk.	Nijni-Novgorod.	Orenburg.	Orel.	Penza.	Perm.
1886.									
Rye	3,640,458	5,570,663	5,354,605	3,479,638	3,503,286	685,621	3,650,313	5,267,235	3,010,765
Autumn wheat ..	77,017	..	..	198,840	18,694	..	141,722	19,582	..
Spring wheat ..	559,723	196,260	199,959	51,553	275,746	1,874,763	4,549	1,083	1,303,583
Oats	2,748,908	7,068,038	3,373,386	3,661,508	2,370,016	2,572,983	4,396,081	2,703,415	5,928,209
Barley	270,132	1,272,558	496,760	96,654	179,873	290,718	47,560	1,125	1,199,855
Total	7,296,238	14,107,519	9,424,610	7,483,188	6,347,615	5,423,855	8,240,225	7,992,440	11,442,412

—	Riazan.	Samara.	Saratoff.	Simbirsk.	Tamboff.	Tula.	Ufa.	Yearly totals in tchetverts.	Yearly totals in poods.
1886.									
Rye	4,621,195	4,764,014	5,980,450	5,147,802	7,061,420	3,673,758	2,671,815	68,087,933	599,173,810
Autumn wheat ..	50,122	40,930	35,395	..	127,706	83,416	1,597	785,021	7,457,699
Spring wheat ..	3,828	3,797,283	943,470	317,211	54,086	1,187	515,911	10,100,075	91,658,180
Oats	3,977,506	1,913,744	3,213,252	2,391,528	4,276,965	4,503,883	1,731,059	57,430,481	323,046,455
Barley	5,197	128,009	153,137	30,685	11,657	27,943	239,575	4,511,438	33,948,570
Total	8,657,848	10,643,980	10,325,704	8,487,226	11,531,834	8,290,187	5,220,037	140,914,943	1,055,284,714

Table V.—Harvest Results in Tchetsverts—continued.

	Voronesh.	Viatka.	Kazan.	Kursk.	Nijni-Novgorod.	Orenburg.	Orel.	Penza.	Perm.
1887.									
Rye	6,141,825	6,085,212	3,815,894	6,204,357	2,911,642	436,907	4,468,310	3,261,954	3,158,054
Autumn wheat ..	359,274	..	..	984,896	12,731	..	539,885	15,306	..
Spring wheat ..	1,544,695	184,659	178,633	169,888	279,386	1,685,079	29,538	1,050	1,217,044
Oats	3,824,550	6,713,494	2,434,083	4,803,881	2,433,350	2,382,804	4,144,755	3,250,062	5,775,239
Barley	681,933	1,313,915	457,715	185,131	195,574	247,454	49,756	1,451	1,239,739
Total	12,552,277	14,247,310	6,886,325	12,348,153	5,892,683	4,752,244	9,232,244	6,529,823	11,390,076

	Riazan.	Samara.	Saratoff.	Simbirsk.	Tamboff.	Tula.	Ufa.	Yearly totals in Tchetsverts.	Yearly totals in poods.
1887.									
Rye	3,652,940	3,431,977	5,146,600	3,159,788	7,130,680	3,067,414	2,247,927	64,971,431	583,118,593
Autumn wheat ..	61,014	16,928	24,650	..	225,804	109,343	..	2,349,831	23,027,089
Spring wheat ..	4,132	1,419,666	831,148	249,363	32,672	922	417,708	8,245,643	78,745,890
Oats	3,357,371	1,106,830	3,118,778	2,657,744	5,683,943	3,910,239	1,637,119	57,234,242	333,389,459
Barley	3,408	41,565	100,057	36,464	14,843	29,103	238,071	4,835,709	36,509,602
Total	7,078,865	6,016,966	9,221,233	6,803,309	13,087,442	7,117,021	4,540,885	137,636,856	1,054,850,633

Table V.—Harvest Results in Tchétverts—continued.

	Voronezh.	Viatka.	Kazan.	Kursk.	Nijni- Novgorod.	Orenburg.	Orel.	Penza.	Perm.
1888.									
Rye	5,682,805	5,395,043	4,021,245	4,702,783	3,054,236	522,571	3,698,468	3,601,276	3,093,686
Autumn wheat ..	1,578,929	1,165	134	1,005,375	17,678	5,820	485,423	30,864	1,445
Spring wheat ..	1,535,229	153,919	179,956	1,115,663	166,400	1,753,250	13,784	1,926	1,291,451
Oats	3,626,782	5,231,289	2,520,842	3,600,884	2,198,285	1,093,059	4,045,881	3,376,448	2,667,854
Barley	664,363	970,552	461,354	151,103	168,170	113,531	43,477	876	678,914
Total	12,088,108	11,751,968	7,183,531	9,575,803	5,614,769	3,488,251	8,257,033	7,011,390	7,786,350

	Kiazan.	Samara.	Saratoff.	Simbirsk.	Tamboff.	Tula.	Ufa.	Yearly totals in Tchétverts.	Yearly totals in poods.
1888.									
Rye	4,034,467	2,741,616	4,063,715	3,304,743	6,967,438	3,675,639	3,060,167	61,619,898	540,714,494
Autumn wheat ..	72,096	17,433	62,349	199	371,619	135,741	..	2,786,270	27,106,132
Spring wheat ..	6,900	2,155,985	1,007,658	324,866	114,122	2,130	449,813	9,276,092	85,803,851
Oats	4,246,684	970,209	2,772,098	2,433,515	6,070,592	4,534,776	716,888	50,106,086	290,615,298
Barley	1,626	31,708	112,670	30,922	27,179	26,222	65,260	3,547,927	26,254,659
Total	8,361,773	5,916,961	8,018,490	6,064,245	18,550,950	8,374,508	4,292,128	127,336,273	970,554,434

Table V.—Harvest Results in Tchetverts—continued.

	Voronezh.	Viatka.	Kazan.	Kursk.	Nijni-Novgorod.	Orenburg.	Orel.	Penza.	Penn.
1889.									
Rye ..	3,414,500	4,592,200	3,525,100	2,458,400	2,304,800	728,800	3,216,800	3,381,600	2,293,500
Autumn wheat ..	318,100	..	..	527,400	10,400	..	347,900	13,300	..
Spring wheat ..	640,600	168,000	203,200	77,800	259,600	3,881,800	16,400	1,400	1,853,900
Oats ..	1,516,800	6,949,700	2,045,700	2,642,800	2,393,400	3,061,100	3,114,100	2,657,700	4,517,000
Barley ..	197,600	1,283,600	493,100	79,700	170,400	267,800	46,600	1,200	988,600
Total ..	6,087,600	12,993,500	6,267,100	5,786,100	5,144,600	7,939,500	6,740,900	6,055,200	9,653,000

	Riazan.	Samara.	Saratoff.	Simbirsk.	Tamboff.	Tula.	Ufa.	Yearly totals in tchetverts.	Yearly totals in poods.
1889.									
Rye ..	4,234,300	2,979,800	4,182,400	3,198,900	4,340,600	3,701,400	3,076,600	51,629,700	447,906,680
Autumn wheat ..	41,200	70,500	31,600	..	215,400	84,700	..	1,662,600	16,227,660
Spring wheat ..	13,400	2,266,100	1,061,200	312,300	93,500	2,600	635,100	11,486,900	101,528,600
Oats ..	3,417,100	775,800	2,351,700	2,114,300	3,524,600	3,484,500	1,781,000	46,353,300	261,983,790
Barley ..	4,600	29,800	117,500	31,000	10,900	27,500	203,900	3,956,800	28,803,820
Total ..	7,710,600	6,122,000	7,747,400	5,659,500	8,185,000	7,300,700	5,696,600	115,089,800	856,450,550

Table V.—Harvest Results in Tchetverts—continued.

—	Voronezh.	Viatka.	Kazan.	Kursk.	Nijni- Novgorod.	Orenburg.	Orel.	Penza.	Perm.
1890.									
Rye	6,391,400	4,733,000	3,284,400	4,879,600	1,948,300	314,000	3,866,000	2,736,500	2,615,300
Autumn wheat ..	270,900	900	600	455,700	9,300	..	226,500	7,600	16,700
Spring wheat ..	1,479,800	139,500	108,500	54,800	94,000	2,277,800	3,800	5,900	624,900
Oats	4,251,700	6,158,500	1,741,900	4,196,100	993,600	1,526,400	4,489,100	1,206,100	3,368,100
Barley	1,031,300	985,000	159,700	158,800	21,400	247,400	59,800	1,400	860,900
Total	13,425,100	12,016,900	5,295,100	9,745,000	3,066,600	4,365,600	8,645,200	3,957,500	7,485,900

—	Riazan.	Samarra.	Saratoff.	Simbirsk.	Tamboff.	Tula.	Ufa.	Yearly totals in tchetverts.	Yearly totals in poods.
1890.									
Rye	3,751,700	2,590,200	4,675,400	2,969,500	7,332,000	3,246,900	1,820,400	57,154,600	501,436,220
Autumn wheat ..	22,100	18,300	26,100	3,100	106,400	54,600	20,900	1,239,700	11,862,510
Spring wheat ..	2,800	2,687,000	1,135,900	252,600	36,200	5,200	405,800	9,314,500	84,503,270
Oats	2,940,600	1,488,900	1,671,800	1,627,900	5,363,800	4,381,700	1,026,700	46,432,900	262,618,280
Barley	1,700	122,100	127,100	13,100	1,900	17,700	51,400	3,860,700	29,320,730
Total	6,718,900	6,906,500	7,636,300	4,866,200	12,840,300	7,706,100	3,325,200	118,002,400	889,741,010

Table V.—Harvest Results in Tchetcherfs—continued.

	Voronezh.	Viatka.	Kazan.	Kursk.	Nijni- Novgorod.	Orenburg.	Orel.	Penza.	Perm.
1891.									
Rye ..	1,182,000	3,985,100	1,516,700	2,856,300	1,615,300	334,500	2,561,500	1,412,000	2,937,400
Autumn wheat ..	49,600	200	1,000	233,500	2,000	..	115,800	3,300	1,300
Spring wheat ..	338,400	114,400	82,700	47,300	156,100	1,157,500	2,500	18,900	433,400
Oats ..	791,900	4,390,400	1,046,100	2,610,000	1,772,100	1,142,300	3,112,400	1,583,100	3,059,300
Barley ..	191,700	704,100	211,600	141,600	95,000	102,900	22,400	67,200	765,300
Total ..	2,553,600	9,194,200	2,858,100	5,888,700	3,640,500	2,737,200	5,314,600	3,084,500	7,196,700

	Riazan.	Samara.	Saratoff.	Simbirsk.	Tamboff.	Tula.	Ufa.	Yearly totals in tchetverts.	Yearly totals in poods.
1891.									
Rye ..	1,631,500	1,918,100	2,781,100	1,501,800	2,597,500	1,810,700	2,055,000	32,696,500	283,353,860
Autumn wheat ..	5,800	2,600	16,400	1,200	34,700	31,500	..	498,900	4,769,320
Spring wheat ..	3,400	1,150,700	636,700	167,300	33,000	4,400	521,600	4,868,300	45,108,930
Oats ..	1,823,000	540,600	975,100	1,230,300	2,613,800	3,328,600	795,800	30,814,800	171,365,170
Barley ..	1,600	37,400	51,200	20,200	3,400	8,400	69,400	2,463,400	18,675,610
Total ..	3,465,300	3,649,400	4,460,500	2,920,800	5,282,400	5,183,600	3,441,800	71,371,900	523,272,890

Table VII.

ARREARS of Taxes and other Charges on Land, including European
Russian Habitation Tax. (Roubles.)

Provinces.	1889.	1890.	1891.	1892.	Assessment for 1890.	Debt Per head of Population, 1892.
	R.	R.	R.	R.	R.	R.
Simbirsk ...	530,000	790,000	1,448,000	3,088,478	2,144,227	1.79
Penza ...	766,000	864,000	1,674,000	4,043,240	2,939,900	2.53
Nijni-Nov. ...	1,279,000	1,613,000	2,604,000	4,293,874	2,629,107	2.72
Orenburg ...	1,279,000	1,736,000	2,243,000	3,180,383	907,579	2.33
Perm ...	1,045,000	1,104,000	1,606,000	2,771,262	3,296,579	0.97
Saratoff ...	1,887,000	1,914,000	2,292,000	4,701,333	3,948,361	1.90
Onfa ...	2,198,000	2,169,000	2,511,000	3,024,487	1,008,414	1.46
Samara... ..	8,126,000	9,858,000	11,875,000	14,408,191	3,707,828	5.34
Kazan	6,948,000	6,848,000	7,901,000	11,369,052	3,905,136	5.06
Tamboff	1,653,000	2,939,000	3,194,000	6,613,534	6,334,658	2.31
Viatka	1,074,572	352,461	250,340	1,230,997	4,980,506	0.40
Koursk... ..	34,929	269,813	189,500	1,561,393	4,896,969	0.63
Orel	2,589,937	2,194,574	1,716,536	2,824,314	3,786,541	1.32
Riazan	764,744	569,572	564,671	2,708,449	3,343,194	1.38
Tula	771,141	478,738	408,201	1,519,700	2,949,088	1.10
Voronezh	1,485,775	1,858,991	1,609,346	4,205,740	5,324,050	1.55
Totals	31,431,098	34,048,149	41,438,594	71,529,427	55,062,022	2.03
Totals for all European Russia and Poland	48,379,692	48,909,226	56,767,150	89,000,000	140,533,914	6.99

Table VIII.—GOVERNMENT Distribution of Grain for Food and Seed in Distressed Provinces (Poods).

Provinces.	Estimated average monthly consumption.	Supplies furnished from December 1, 1891, to May 25, 1892.	Stocks of Food in public warehouses on December 1, 1891.	Estimated requirements for Seed.	Seed furnished up to May 25.	Stock of Seed in public warehouses.	Sum expended on famine relief—food and seed. (Roubles.)
Voronezh ..	900,000	4,947,000	2,370,000	2,000,000	1,589,000	178,000	poods. 6,100,000
Viatka ..	650,000	1,615,000	1,300,000	4,000,000	2,683,000	456,000	6,164,000
Kazan ..	737,000	3,834,000	32,000	4,439,000	3,750,000	3,000	13,100,000
Koursk ..	430,000	1,634,000	697,000	1,250,000	815,000	57,000	2,860,000
Nijni-Novgorod ..	440,000	2,083,000	49,000	1,350,000	997,000	24,000	6,750,000
Orenburg ..	512,000	1,444,000	..	1,398,000	173,000	..	10,000,000
Orel ..	254,000	1,422,000	83,000	294,000	221,000	186,000	2,360,000
Penza ..	842,000	3,243,000	99,000	764,000	456,000	37,000	8,100,000
Perm ..	393,000	1,434,000	13,000	2,826,000	1,755,000	4,000	6,100,000
Riazan ..	600,000	2,551,000	..	1,690,000	914,000	..	6,800,000
Samara ..	700,000	4,681,000	184,000	1,580,000	1,971,000	16,000	12,050,000
Saratoff ..	890,000	4,367,000	1,019,000	6,500,000	3,224,000	59,000	13,500,000
Simbirsk ..	600,000	3,751,000	450,000	1,960,000	2,195,000	182,000	10,000,000
Tamboff ..	1,000,000	4,768,000	143,000	3,000,000	972,000	66,000	10,200,000
*Tula ..	474,000	2,014,000	..	2,700,000	182,000	..	4,080,000
Oufa ..	165,000	940,000	124,000	800,000	719,000	27,000	2,500,000
Totals ..	9,587,000	44,728,000	6,567,000	36,601,000	22,596,000	1,295,000	120,664,000

Table IX.

CALCULATION of Food Requirement per Head.

(Poods of Bread Stuffs and Potatoes.*)

Year.	Population.	Harvest Yield.	Exports.	Balance left for Food.	Balance per Head.
1883	79,266,972	1,360,742,000	264,125,000	1,096,617,000	13,834
1884	80,600,765	1,525,485,000	297,806,000	1,227,679,000	16,472
1885	81,725,185	1,356,952,000	215,937,000	1,141,015,000	13,962
1886	83,025,542	1,501,130,000	273,450,000	1,227,680,000	14,787
1887	84,309,193	1,767,179,000	415,238,000	1,351,941,000	16,036
1888	85,810,602	1,849,525,000	421,931,000	1,427,594,000	16,637
1889	87,017,022	1,263,290,000	321,316,000	941,974,000	10,825
1890	88,132,205	1,550,119,000	366,391,000	1,183,728,000	13,431
Total ...	669,887,486	12,274,422,000	2,576,194,000	9,698,228,000	...
Average for one year.	83,735,936	1,534,303,000	322,024,000	1,212,278,000	14,477

* Three poods of potatoes are reckoned as the equivalent of one pood of cereals.

In the above calculation no account is taken of the unascertainable amounts of stocks in the country at the beginning of 1883, nor of the stocks existing at the end of 1890. The calculation covers, however, a period of eight years, and consequently, with an average population of 84,000,000, the difference between the stocks at the two dates must have exceeded 168,000,000 poods to make a difference of even one quarter of a pood in the result.

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Nº. 293.

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COMMERCIAL INTEREST.

RUSSIA.

REPORT ON THE
CULTIVATION OF THE VINE AT BERDIANSK.

*Presented to both Houses of Parliament by Command of Her Majesty,
JULY, 1893.*

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RUSSIA.

TAGANROG.

Consul Talbot to the Earl of Rosebery.

My Lord,

Taganrog, June 10, 1893.

I HAVE the honour to transmit herewith a short Report on the Cultivation of the Vine at Berdiansk, a place celebrated in this part of Russia for the size and sweetness of its grapes, furnished me by Mr. Vice-Consul Lowe.

I have, &c.

(Signed) C. A. P. TALBOT.

Report on the Cultivation of the Vine at Berdiansk.

ABSTRACT of Contents.

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Extent of land under cultivation	3
Amount of wine produced	3

The town of Berdiansk was formed by Prince Woronsoff, about the year 1842, on the low ground adjoining the sloping steppe, and was originally doubtless washed by the Sea of Azoff, the soil being entirely sand and shells, with brackish water to be found everywhere within a few feet of the surface. Beyond the space allotted to the town, plans were drawn up for the formation of gardens, and the land, about 300 desitines (a desitine equals 2·7 acres), was offered to the peasants and German colonists upon the following terms, viz. :—To plant not less than 120 fruit trees or 2,400 vines per desitine, and to employ every effort to properly cultivate the same, an annual tax of 7½d. per desitine being levied.

(1565)

A 2

Sole ownership was granted upon the understanding that in case of default in the above conditions, the land would revert to the town, permission being given to buy or sell any portion of the land hereafter upon the same conditions. Every available plot was soon taken up, and in a few years the entire space was transformed into well arranged and profitable gardens.

Further
extent of
gardens sold.

During the year 1888 this experiment was repeated by the Town Council. A quantity of land, about 500 desitines, was sold by auction, and averaged 10 $\frac{1}{2}$ per desitine to 50 $\frac{1}{2}$ per desitine, the sale terms being an annual payment of 6s. per desitine for 10 years, and the same conditions as to cultivation, the land to revert to the Town Council, and a new sale taking place, upon terms to be then decided upon. It is anticipated that much trouble and unpleasantness will be experienced at the end of this term. These lands were adjoining the first planted gardens, but had previously only been grazed by the cattle and horses belonging to the inhabitants of the town; in consequence, however, they had improved much in quality, the sandy soil having become dark and rich, but no doubt the above terms were onerous. Still no difficulty occurred in finding purchasers, and the necessary vines and fruit trees were planted, and the gardens now present a very avourable aspect. The vines thrive well and already bear fruit, large quantities of ordinary garden produce being also grown. The descriptions of vines principally grown here are, the Chassla or Beruska, Chaous, Isabella, black and white Muscat, Burgonski, Arcitinski, and the Alexandra Muscat. The vines give a greater yield on the low sandy soil, but the more delicate kinds thrive better on the slopes in a clay soil. About 3,000 vines occupy a desitine of land, and no manuring is practised, although where experiments have been made with old vines, manure has been found advantageous.

Descriptions
of vines
grown.

Average
yield of
vines, prices
of grapes and
new wine.

The average yield of grapes of the common kinds is about 10 lbs. per vine, a pood of grapes (36 lbs.) producing three-quarters of a vedro, or about 2 gallons of wine. The superior kinds of grape give a smaller yield. Prices of grapes average from 80 c. (1s. 8 $\frac{1}{2}$.) to 4 r. (8s.) per pood, and new wine from 1 r. 50 c. (3s.) to 5 r. (10s.) per vedro. The crushing is carried on in a primitive manner, and little attention is paid to sorting or cleaning. Bulgarians and German colonists come in from the country districts during the early autumn, and buy up the wine—or the considerable portion of it. None is as yet exported.

There are several large private growers who take special care in the cultivation of their vines and preparation of wine, and some good sound wine can be generally found in their cellars.

The bulk of the wine being of a light character (8 per cent. to 10 per cent. of alcohol) does not bear keeping, but where the superior kinds are properly cleared from the stalks and sun-dried, a good strong wine is obtained which keeps well and can be bought at 6 r. and 8 r. (12s. to 16s.) per vedro.

No
phylloxera.

No phylloxera or other vine disease has yet been experienced at Berdiansk.

It is estimated that some 1,500 desitines of land are under vine cultivation amongst the various colonies and villages in this district, in addition to the quantity belonging to the town. Extent of land under cultivation.

Probably in a short time an outlet will have to be found for the surplus wine, as undoubtedly the quantity produced will be doubled, and the supply will be greater than can be consumed in the surrounding districts. Outlet will have to be found for surplus wine.

The vines seldom fail to give a good yield, the cultivation therefore is found to be lucrative, but it is five years before the vine is in full bearing.

The present production of wine at Berdiansk amounts to about 300,000 gallons per annum. Amount of wine produced.

The vines during the autumn are bent down and well covered over with earth to provide against the attack of the severe frosts. In the spring this is removed and the vines cut down to 2 feet and 3 feet from the ground, and not more than 5 stalks or branches are allowed to remain, and these have necessarily 4 or 5 buds on each.

150*l*. at this present time will purchase a desitine of garden belonging to that portion first put under vine cultivation, with a cottage and outhouses.

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REPORT ON THE
SALT INDUSTRY IN ASTRAKHAN.

*Presented to both Houses of Parliament by Command of Her Majesty,
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No. 294.

R U S S I A .

TAGANROG.

Consul Talbot to the Earl of Rosebery.

My Lord,

Taganrog, June 15, 1893.

I HAVE the honour to transmit herewith a Report on the Salt Industry in the Province of Astrakhan, which may be of some interest as I am not aware, that this particular industry in Astrakhan has been dealt with before.

I have, &c.

(Signed) C. A. P. TALBOT.

Report on the Salt Industry in the Province of Astrakhan.

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Salt basin in
Trans-Volga
Steppes.

South
Astrakhan
salt lakes and
Chapchachi
Hill.

The Trans-Volga Steppes, in the province of Astrakhan, represent an extensive salt basin, composed of the largest known salt lakes, viz., Elton and Baskunchak, a whole group of so-called South Astrakhan salt lakes, and large beds of rock-salt in the Chapchachi Hill. Taking into consideration the importance and great value of this salt-bed, it is surprising that more attention is not directed to its development. At the present moment the salt is extracted only from the Baskunchak and South Astrakhan Lakes. The work at the Elton Lake has been discontinued since 1882, and the Chapchachi Rock Salt Works were closed in 1885. On referring to the annals of the salt industry in these parts it will be observed that it has not been developed steadily, but, on the contrary, it has had many ups and downs, owing, not so much to the quality of the salt or the producing capacities of the lakes themselves, as to the usual conditions and state of trade and industry, attention being directed first to one group, then to another.

One great factor in the development of the salt industry was the establishment of steam communication on the Volga and a diminution in the cost of transport.

Pernicious
effect of
steam
communica-
tion on Volga
on works at
Elton Lake
and Chap-
chachi Hill.
First working
of salt
industry in
Astrakhan.

The effects of this, however, were two-sided; while placing facilities in the way of the Baskunchak and Astrakhan Lakes, it paralysed the trade of the Elton and Chapchachi establishments, so that with the appearance in the market of salt from the beds in the Crimea, Bachmut, on the Don, &c., they were obliged to suspend operations.

The salt was first worked at the Astrakhan Lakes at the time that Ivan the Terrible conquered that province, but after the nomadic Kalmuks became Russian subjects, A.D. 1665, the industry was gradually transferred to the Elton Lake, and from 1747 (exclusive of 1863-64-65) it was generally concentrated in that locality, lasting till the year 1882. During 116 years (1747-1862) the lake was worked by the Government, but from 1866 to 1882 it was in the hands of private individuals.

Production of
salt under
Government
from
1747 to 1862.

The production of salt (per ten years) by the Government was as follows:—

Years.						Quantity.
						Tons.
1747 to 1756	..	..	..	..	..	333,428
1757 1766	..	..	..	..	..	706,025
1767 1776	..	..	..	..	..	366,768
1777 1786	..	..	..	..	..	760,203
1787 1796	..	..	..	..	..	719,818
1797 1806	..	..	..	..	..	1,138,862
1807 1816	..	..	..	..	..	1,380,216
1817 1826	..	..	..	..	..	810,498
1827 1836	..	..	..	..	..	294,470
1837 1846	..	..	..	..	..	636,285
1847 1856	..	..	..	..	..	1,184,947
1857 1862	..	..	..	..	..	286,447

and by private individuals—

By private
individuals,
1866-82.

Year.							Quantity.
							Tons.
1866	..	..	..	..	..	..	927,743
1867	..	..	..	..	..	..	116,647
1868	..	..	..	..	..	..	51,789
1869	..	..	..	..	..	..	30,252
1870	..	..	..	..	..	..	16,117
1871	..	..	..	..	..	..	5,842
1872	..	..	..	..	..	..	8,773
1873	..	..	..	..	..	..	13,552
1874	..	..	..	..	..	..	14,699
1875	..	..	..	..	..	..	2,953
1876	..	..	..	..	..	..	3,338
1877	..	..	..	..	..	..	3,852
1878	..	..	..	..	..	..	6,116
1879	..	..	..	..	..	..	1,741
1880	..	..	..	..	..	..	9,543
1881	..	..	..	..	..	..	26,841
1882	..	..	..	..	..	..	38,318

The above figures giving the total quantity of salt produced at the Elton Lake during all the period that work was carried on, show at the same time the great fluctuations in the output that took place. These fluctuations may be attributed as the outcome of the various measures adopted by the Government in order to increase the sale of the Elton salt, and it may also be remarked that as soon as the undertaking passed into private hands a gradual decline set in and the spurts of 1881-82 only helped to bring matters to a climax, and the works were closed at a very great loss to the proprietors.

In 1883 not a single lease was renewed.

The Elton Lake is one of the most extensive and richest salt lakes known to exist, and covers an area of 135 square miles. The thickness of the salt bed is, up to the present day, unknown. As far back as 1805 attempts were made to dig a well, but the work had to be abandoned at a depth of 14 feet owing to the hardness of the salt and foul air, which prevented the labourers from stopping down more than ten minutes at a time. This unsuccessful attempt, however, still proves that the layer of salt in the Elton Lake is at least 14 feet thick, and consequently contains a stock of several hundred million tons.

According to the analysis of Professor Fedchenko the Elton salt is composed as follows:—Chloric natron, 95.507 per cent.; chloric magnesium, 0.460 per cent.; sulphate of magnesia, 1.137 per cent.; sulphate of lime, 1.482 per cent.; and water, 0.969 per cent.

The salt was worked by primitive means, the only tools used being crowbars, pickaxes, and spades, and was transported to the shore on specially constructed rafts, carrying from 1 ton to 1½ tons. The cost of working 1 pood (36 lbs. English) of salt at the time the lake was held by the Government was 1½d., and

(1582)

A 3

RUSSIA.

the salt was sold on the spot at $6\frac{3}{4}d.$ per pood to $7d.$ per pood. On the transfer of the lake to private management the cost of production was reduced to $1\frac{1}{4}d.$ per pood.

The principal drawback to the development of the industry was the great expense of transporting the salt to the landing stages at Grialkin and Nicolaevsk on the Volga, sometimes reaching $2\frac{1}{4}d.$ per pood; for this reason the Elton salt could not compete with salt produced under more favourable circumstances. In 1882 the Elton salt was sold on the spot at $1\frac{1}{4}d.$ per pood to $1\frac{1}{2}d.$ per pood, and the price at Nicolaevsk was $3d.$ per pood to $3\frac{1}{2}d.$ per pood at the principal markets, such as Tsaritzin, Saratov, Syzran, and Nijni Novgorod, it could not be sold under $4d.$ per pood, $4\frac{1}{2}d.$ per pood, and $5d.$ per pood. Whereas the Baskunchak and Astrakhan salts could be obtained at these places at $\frac{1}{2}d.$ per pood, $\frac{3}{4}d.$ per pood, and even $1d.$ per pood cheaper. Under these circumstances it was impossible to keep things going, and the owners were obliged to close their establishments. During the last few years of its existence the sale of Elton salt was limited to the provinces of Saratov, Samara, Kazan, Tamboff, Penza, Riazan, Toulá, Moscow, and Smolensk, but at the time the works were held by the Government the markets extended over a far larger area, and the salt even found its way to Finland.

Baskunchak
Lake.

Operations on the Baskunchak Lake were first commenced in the middle of the last century, but the output was very limited, and owing to the serious competition of Elton salt it dropped off altogether, and it was only in 1867 that a fresh start was made, and since then the annual output has been as follows:—

Annual out-
put since
1867.

Year.						Quantity.
						Tons.
1867	..	..	..	..	..	870
1868	..	..	..	..	..	8,244
1869	..	..	..	..	..	18,010
1870	..	..	..	..	..	20,301
1871	..	..	..	..	..	29,022
1872	..	..	..	..	..	58,412
1873	..	..	..	..	..	77,364
1874	..	..	..	..	..	84,141
1875	..	..	..	..	..	89,889
1876	..	..	..	..	..	99,927
1877	..	..	..	..	..	122,661
1878	..	..	..	..	..	145,025
1879	..	..	..	..	..	152,509
1880	..	..	..	..	..	160,210
1881	..	..	..	..	..	197,747
1882	..	..	..	..	..	208,441
1883	..	..	..	..	..	166,666
1884	..	..	..	..	..	118,466
1885	..	..	..	..	..	176,430
1886	..	..	..	..	..	188,761
1887	..	..	..	..	..	182,539
1888	..	..	..	..	..	234,426
1889	..	..	..	..	..	218,097
1890	..	..	..	..	..	233,174
1891	..	..	..	..	..	227,777
1892	..	..	..	..	..	219,047

From these figures it will be at once seen that the development has been very rapid without any serious fluctuations, which proves that the production has not been fostered by artificial measures, but has simply followed the increased demand for salt.

The Baskunchak Lake, second in size to Elton, extends over an area of 66 square miles. Surveys made in 1883 prove the bed to be from 20 to 28 feet deep; and the analysis made by Professor Fedchenko, shows as follows:—Chloric natron, 97·436 per cent.; chloric magnesium, 0·403 per cent.; sulphate of magnesia, 0·132 per cent.; sulphate of lime, 0·659 per cent.; mineral matter indissoluble in water 0·373 per cent.; organic matter, 0·157 per cent., and water, 0·782 per cent.

The mode of extracting the salt is similar to that practised at the Elton Lake. Blasting with dynamite was introduced in 1877, but it is very rarely resorted to, and its use has never been efficiently adopted.

The cost of production up to the time of the closing of the Elton establishments was the same as at the last named, the sole difference being in the cost of transport to the landing stages on the Volga, *i.e.*, from Elton it was $2\frac{1}{2}d.$ per pood, whereas from Baskunchak it was only $1\frac{1}{4}d.$ per pood. At the present time, however, both the working expenses and the cost of transport have been considerably reduced, and the salt can be put on the barge at the Vladimirska quay, at from $1d.$ per pood to $1\frac{1}{2}d.$ per pood, including all charges. The fluctuations of the above figures is dependent upon the mode of transport to the landing stage; and it is a somewhat curious fact that the carriage by carts is less expensive than sending it by the Baskunchak Railway. With the decline in the cost of production, prices of salt also gave way, as, for instance, in 1882 $1\frac{3}{4}d.$ per pood to $2\frac{1}{2}d.$ per pood was paid on the spot, and $3d.$ per pood to $3\frac{3}{4}d.$ per pood at the Vladimirska landing stage, but in 1892 the price fell to $\frac{3}{4}d.$ per pood to $\frac{7}{8}d.$ per pood, and $1\frac{3}{8}d.$ per pood to $2\frac{3}{8}d.$ per pood respectively.

The Baskunchak salt has been principally supplying the markets formerly held by the Elton salt, but since 1886 it has had to retire from some of them owing to the competition of the South Russian salt.

The salt industry of the Astrakhan Lakes is chiefly concentrated in the south-west of Astrakhan, in the neighbourhood of the Nicolaievka, Liteinaya, and Bassova villages. Here there are altogether over 70 lakes, more than half of which are being worked. Taking into consideration their size and the quality of the salt produced, the following are the principal lakes:—Basinsk, Kistel-Khan, Great Betlouk, Little Betlouk, Great Turavinsk, Great Korduansk, Great Bantakak, Bogoroditsko-Don, Baikutsuk Number 2, and others. The supplies of salt from these Astrakhan Lakes are, as compared with Elton and Baskunchak, insignificant, and it has been remarked that with an increased production the salt immediately deteriorates both in quality and quantity. For instance, the salt from the Great

Extent of lake.

Analysis of salt.

Mode of extraction.

Cost of production and transport.

Smaller Astrakhan lakes.

Deterioration of salt on increase of production.

Explanation
of deteriora-
tion.

Basinsk Lake, according to analyses made from 1825-56, contained 93·89 per cent. of chloric natron, but after being worked for some time, especially during the last few years, when larger quantities have been extracted, the percentage dropped to 84·79 per cent. This decline is explained by the fact that in working the evaporated salt all the bitter magnesia salts are washed out by the brine, and in this manner remain in the lake. The salt is extracted in the same primitive manner as at the lakes before mentioned. The production of salt is comparatively large, but at the same time the output remains more or less stationary and shows no signs of increasing.

From the figures given below it will be noticed that a spurt appears to have been put on in the years 1881-82, but it was not kept up, and the quantity since then has fallen off.

Annual output
since 1866.

Commencing from the year 1866, the output in tons at the lesser Astrakhan lakes was as follows:—

Year.							Quantity.
							Tons.
1866	..	..	..	..	..	..	52,430
1867	..	..	..	..	..	..	72,573
1868	..	..	..	..	..	..	42,122
1869	..	..	..	..	..	..	53,915
1870	..	..	..	..	..	..	65,697
1871	..	..	..	..	..	..	54,861
1872	..	..	..	..	..	..	91,507
1873	..	..	..	..	..	..	77,809
1874	..	..	..	..	..	..	40,857
1875	..	..	..	..	..	..	29,942
1876	..	..	..	..	..	..	47,843
1877	..	..	..	..	..	..	53,723
1878	..	..	..	..	..	..	83,000
1879	..	..	..	..	..	..	73,181
1880	..	..	..	..	..	..	73,053
1881	..	..	..	..	..	..	163,926
1882	..	..	..	..	..	..	169,063
1883	..	..	..	..	..	..	60,935
1884	..	..	..	..	..	..	29,693
1885	..	..	..	..	..	..	50,807
1886	..	..	..	..	..	..	46,705
1887	..	..	..	..	..	..	40,464
1888	..	..	..	..	..	..	62,466
1889	..	..	..	..	..	..	90,445
1890	..	..	..	..	..	..	64,404
1891	..	..	..	..	..	..	41,682
1892	..	..	..	..	..	..	34,492

Cost of
production
and transport

During the last year of the existence of the Elton Lake Works, the cost of production at the Astrakhan Lakes was the same as that at Elton and Baskunchak, the only difference being in the cost of carriage to the landing stage, which did not exceed about 1*d.* per pood, and on the average was about $\frac{1}{2}$ *d.* per pood to $\frac{3}{4}$ *d.* per pood. At the present time the cost of production and transport is cheaper, and the salt can now be put on board the barge at

1½d. per pood to 1¾d. per pood, including all charges. The price during 1892 of the South Astrakhan salt at the principal landing stages was 1½d. per pood to 1¾d. per pood, as against 2¼d. per pood to 2¾d. per pood in 1882.

The Chapchachi rock salt bed consists of a solid mass of rock Chapchachi salt comprising the Chapchachi Hill, and is about 53 miles to the Hill. south of the Baskunchak Lake, 57 miles east of the Volga, and about 97 miles N.N.E. of the town of Astrakhan.

The Chapchachi Hill is only about 90 feet high, its length is Dimensions. about 2 miles, and breadth 4,900 feet. According to surveys made the salt strata is about 280 feet thick, but the total quantity of salt has not yet been determined.

The salt was first worked in 1861, and from that date to 1885, Annual when operations were stopped, the production per annum was as production follows:— since 1861.

Year.						Quantity.
						Tons.
1861	..	..	..	..	..	86
1862	..	..	..	..	..	118
1863	..	..	..	..	..	58
1864	..	..	..	..	..	94
1865	..	..	..	..	..	59
1866	..	..	..	..	..	1,501
1867	..	..	..	..	..	2,592
1868	..	..	..	..	..	1,105
1869	..	..	..	..	..	5,342
1870	..	..	..	..	..	7,608
1871	..	..	..	..	..	10,429
1872	..	..	..	..	..	20,585
1873	..	..	..	..	..	20,113
1874	..	..	..	..	..	22,300
1875	..	..	..	..	..	26,937
1876	..	..	..	..	..	16,145
1877	..	..	..	..	..	1,003
1878	..	..	..	..	..	19,742
1879	..	..	..	..	..	17,227
1880	..	..	..	..	..	16,550
1881	..	..	..	..	..	6,238
1882	..	..	..	..	..	7,808
1883	..	..	..	..	..	15,438
1884	..	..	..	..	..	9,288
1885	..	..	..	..	..	4,234

Judging by the above figures the development of the Chapchachi salt industry during the first ten years made slow progress, but after that it rapidly increased as far as 1880, but from that year a decline again set in, and in 1885 the works were closed altogether. The cause of this was the opening out of the Works closed in 1885 Baskunchak and Astrakhan lakes, where the working expenses and cost of transport were much lower, and it was therefore impossible for the Chapchachi salt to compete with them, they being in a position to supply the markets with a much cheaper article.

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Nº. 307.
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COMMERCIAL INTEREST.

R U S S I A.

REPORT ON THE
MANGANESE ORE INDUSTRY OF SHAROPAN.

*Issued during the Recess and Presented to both Houses of Parliament
by Command of Her Majesty.*

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RUSSIA.

BATOUM.

Consul Stevens to the Earl of Rosebery.

My Lord,

Batoum, September 23, 1893.

I HAVE the honour to enclose a Report that I have drawn up on the Manganese Ore Industry of the District of Sharopan which is situated in the Trans-Caucasian Province of Kutais.

I understand that the inhabitants of the district have recently petitioned Government to increase the rolling stock of the railway which is now only able to transport 64,515 tons of ore per annum, whereas the quantity that is already being exported from the mines greatly exceeds those figures.

The petition likewise contains the request that a service of trains for the conveyance of passengers between Kvirili and Chiatur should be established as soon after the completion of the branch line as possible.

I have, &c.
(Signed) P. STEVENS.

Report on the Manganese Ore Industry of the District of Sharopan.

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General
remarks.

The manganese ore industry of the district of Sharopan, government of Kutais, is one of the chief sources of Caucasian wealth. Its significance, even in its present early period of existence, is a question of vital importance to the population of the government of Kutais as also to the whole of the Russian Empire; for Russia, which annually furnishes over 150,000 tons of this ore to other European nations for the purpose of making steel, has become one of the largest exporting countries of the world.

England takes more than half the quantity she requires for her foundries from the Caucasus, and is thus one of the largest consumers of this mineral. Many other first rate European Powers use considerable quantities of Trans-Caucasian manganese at their steel works. Within the last few years the already existing great demand for this particular kind of ore has been increased by the fact that America has likewise become a consumer, and there is every prospect that on the completion of the Chiatur branch of the Trans-Caucasian Railway a still further augmentation in the demand will take place.

The manganese ore industry is also of importance to the population of the government of Kutais, inasmuch as it furnishes labour for the more or less poverty stricken inhabitants of that province, where the insufficiency of the lands allotted to them and the unproductiveness of the soil are more seriously felt than in other parts of the Caucasus; and where a large proportion of the peasantry has been compelled for some time past, in consequence of the almost total failure of the vine crop, which has been repeatedly destroyed by the phylloxera, to seek for employment in other parts of the country. The industry has, therefore, become a most important factor in the existence of the inhabitants, and during the last few years the population of Imeretia alone has earned over 150,000*l.* per annum for working the mines and transporting the ore to the railway station of Kvirili.

A source of
employment.

Under the existing climatic conditions, and the indolence, apathy and meagre agricultural knowledge of its people, the culture of the vine in Imeretia has become a matter of impossibility, and all the remedies hitherto brought into use for the destruction of the phylloxera have proved fruitless. Unless, therefore, some radical measure for its extermination is not shortly introduced, within the next few years the vine-growing industry of the district will become a thing of the past. Owing to this it is hoped that when the manganese ore industry reaches a higher state of efficiency than it has yet attained, it will, in addition to furnishing labour for the whole population of Imeretia, also give employment to a great number of outsiders, and will be directly instrumental in reviving other industries, the total absence of which is now conspicuous and sorely felt by the inhabitants.

In view of the above it would be interesting to become

acquainted with the history of the origin of the manganese ore industry of the Caucasus, its slow development, the present condition in which it finds itself, as well as to ascertain how far the hopes that are entertained in its future greatness are justified.

The latter engages the curiosity of people all the more owing to the existence of certain pessimist individuals, who do not admit of the possibility of the industry being raised to a flourishing state, on the ground that the Chiatur branch line will never render the enterprise sufficiently remunerative to convert it to that degree of efficiency which will enable it to become the main support of the population, and although they believe that the railway will call forth a greater demand for the ore, yet they are of the opinion that, when the line is completed, a large proportion of the inhabitants who have been in the habit of transporting the mineral from Chiatur to Kvirili will be deprived of the means of earning a livelihood.

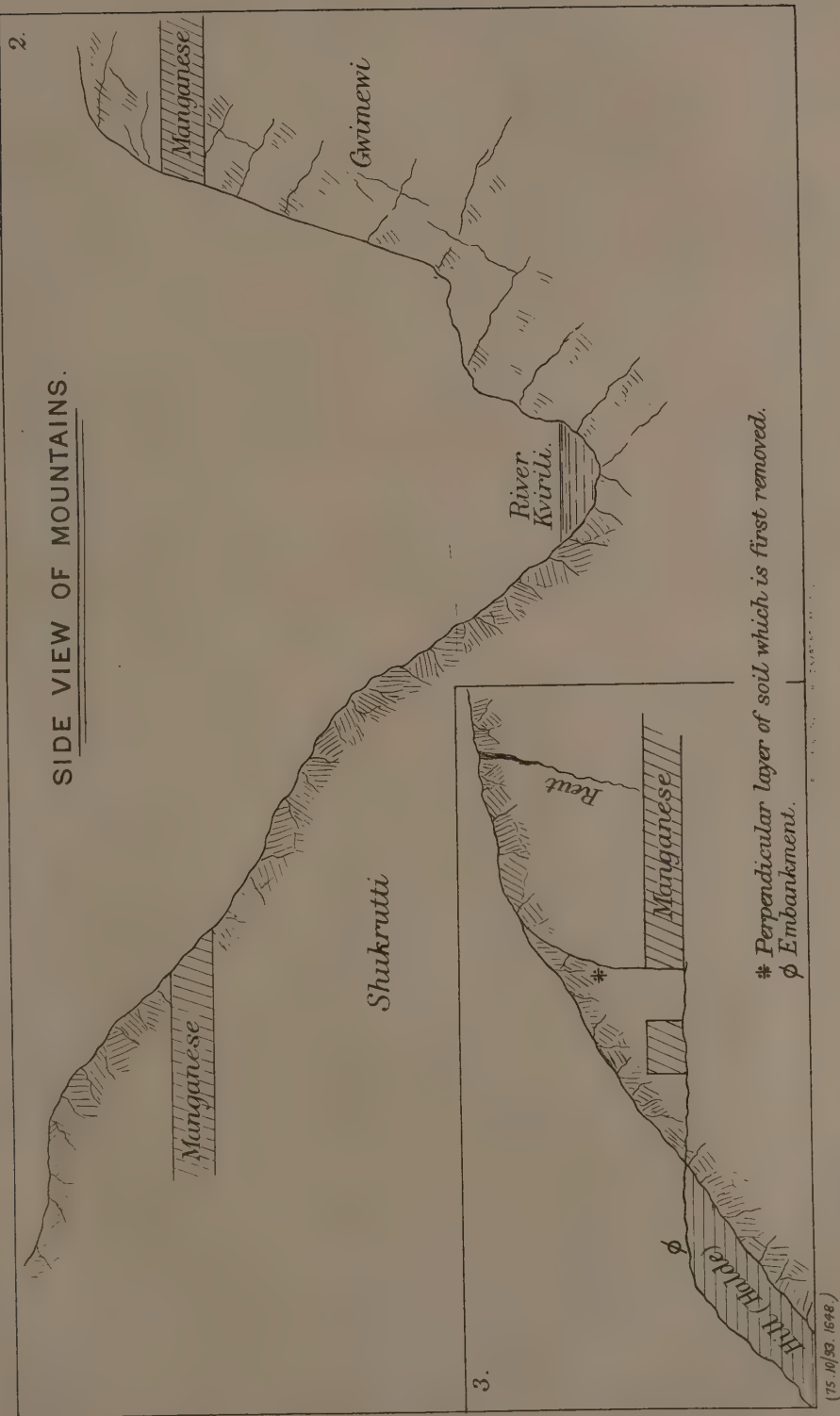
The ore is obtained exclusively in the district of Sharopan, ^{Where} near the village of Chiatur, about $26\frac{1}{2}$ miles from the village of ^{obtained.} Kvirili, the administrative and commercial centre of the district. The great mass of the mines are situated in this locality, and they extend over an area of $13\frac{1}{4}$ square miles. According to the latest approximate estimate they contain 66,500,000 tons of ore, and it is calculated that at the present rate of activity it will take over 200 years to exhaust these extensive repositories.

A commencement was made in the year 1879, when 871 tons ^{Amount} of ore were produced; in 1880, 4,081 tons were obtained from ^{obtained.} the mines; 5 years later, *i.e.*, in 1885, the quantity exported was 20,370 tons; in 1889, 137,097 tons; and this year, after the completion of the construction of the railway, it is expected that the exports will reach the big figures of 322,581 tons.

In the year 1879 the representatives of several large foreign ^{Leases.} firms, such as Krupp and Co., visited the ore fields, and after making preliminary surveys and becoming convinced in the almost inexhaustible riches of the mines, leased several plots of land and commenced to manipulate the ore. Their example was quickly followed by the natives, and several local commercial and enterprising men, who were well acquainted with the conditions of the soil, likewise started to work the mines. They appropriated the best plots of land, and thus became the desperate rivals of the foreigners. The landed proprietors next stepped in, and the foreigners eventually had to give way to the natives, who have ever since continued to work the mines with the most primitive appliances, and without much application; for it can safely be said that during these many years only the ore nearer to the outside edge of the mountains has been touched.

The Chiatur manganese ore fields are situated in a very ^{Situation.} mountainous and difficult country following the course of the River Kvirili, at a height of from 700 feet to 1,050 feet above (1648)

the village itself. The mines are distributed in groups from $1\frac{1}{2}$ miles to $3\frac{1}{2}$ miles distant from the village, and are connected with the latter by narrow cattle tracks which wind in ziz-zags over rocky ground, vertically placed precipices and projecting rocks, where obstructions are frequently met with. Access to them is therefore rendered dangerous, and the ore has to be transported in small quantities at a time on the backs of pack animals, horses being chiefly used. In wet weather, when these tracks become almost impassable, many accidents occur both with man and beast during the transit of the ore. The industry is therefore entirely dependent on the elements, and in the autumn of the year 1891, which was exceptionally wet, a sensible decline, as compared with the same period of the previous year, was observed in the quantities of ore brought down from the mines to the railway station of Kvirili. The natural result of the defective condition of these tracks is that the prices for the transport of the ore fluctuate considerably, and have a very injurious effect on the progress of the industry. In the year 1891 the cost price of the ore at the station of Kvirili was 7*d.* to 9*d.* for every pood of 36 lbs. *avoirdupois* weight delivered, whereas in the autumn of the same year the transport from Chiatur to Kvirili alone cost the producers $7\frac{1}{2}$ *d.* for the same weight. It is evident that under these circumstances the industry cannot be developed with any advantage to those concerned, and that the narrow gauge branch line which is now being brought to completion will have the good effect of removing the existing abnormal state of affairs, and will give the industry a fresh impetus and a certain amount of stability. It is also certain that at no distant date the difficulties at present experienced in the transport of the ore from the mines to Chiatur will likewise be remedied. Attempts in this direction have already been made by two French engineers who belonged to a Manganese Ore Company which some time ago was trading under the style of "Terre Noir." These two gentlemen worked out a project, by which it was proposed to send the ore down from the Rgan mines to the Chiatur valley by means of trucks to be let down the slope of an embankment by an endless chain on blocks which were also to haul up the empty trucks in their descent. All the necessary arrangements for carrying out this project had been made, and the required materials procured, when the company failed and the matter was dropped. The service that the realisation of this project would render to the industry is beyond all conception, and the daily limited quantity of ore which is now being brought down to Chiatur could be doubled and trebled with the greatest ease; the industry would then be guaranteed against eventualities, and would at once receive the strength of character which it so sadly requires. The erection of the necessary appliances might advantageously be undertaken by Government, *i.e.*, the Trans-Caucasian Railway, which would thus acquire a fresh source of revenue, and by



reducing the actual prices paid for the transport of the ore, bring about a decline in the market value of the mineral, and unquestionably cause a great increase in the present demand for it.

Other drawbacks are experienced in the conditions under which the manganese ore industry of the Caucasus is carried on. Five mountains rise in an almost perpendicular slope from the bed of the River Kvirili, three of which, *i.e.*, Sedorgani-Rgani, Gwimewi and Darquetti, are situated on its right bank, and two, *viz.*, Shukrutti and Perewissi, on the left, they contain at almost equal distances from the level of the river a layer of manganese ore of considerable depth, which is alternately found between layers of chalk, earth, and other substances. The three mountains on the right and the two on the left banks are detached from each other by rivulets which discharge their waters into the River Kvirili, and those slopes of the five mountains that are nearest to the village of Chiatur have been pierced by the mine owners. The annexed sketches will give the reader a fairly good idea of the disposition of the mountains and of the most antiquated and extravagant manner in which the ore is produced according to the description here below given.

A perpendicular layer of soil on the slope of the mountain is first removed, and together with the earth, stone, and manganese dust obtained from tunnelling, a sufficiently spacious plateau or unsupported embankment is made, on which sheds, &c., are erected, and along which a road is constructed, subsequently by means of a tunnel pierced through the side the mountain is entered and a horizontal gallery from which the ore is obtained is excavated. The interior of this gallery seldom or ever reaches a greater longitudinal depth than 35 feet, and only in extreme cases one meets with a pit of medium length. In most cases after the first mentioned length is attained the gallery is abandoned in favour of other similar short ones excavated parallel to the original one at a distance of from 10 feet 6 inches to 28 feet from it. The supports in the galleries are few and far between, and landslips in the mines are of frequent occurrence. This extravagant mode of working the mines is chiefly attributed to the passion which both the mine-owners and labourers have for earning an easy living. It is only in a very few instances, and exclusively in mines owned by wealthier classes, that properly constructed galleries are to be met with, and where operations are more or less carried on with any regard to the generally accepted rules of mining; but even here the waste of ore is enormous. A considerable loss is also sustained through not utilising the dust produced by the ore while being handled, which together with other detached parts go to waste instead of being made up into bricks, &c., and thus profitably turned to account. The work in connection with the production of the ore is heavy, is leased out to the miners by piecework and paid for per

Procedure.

cubic sajen of $22\frac{1}{2}$ tons of pure ore. The time occupied by four men to procure this quantity is about 20 days, and the price paid for the workmen, including their tools, petroleum lamps and oil, is 4*l.* per cubic sajen of $22\frac{1}{2}$ tons pure ore. The price for the lease of the land is 2*l.* for the same quantity.

Want of
skilled labour.

The number of obtainable experienced hands is very limited, most of the men employed come from the neighbouring villages to seek labour when pushed to do so by the total absence of work nearer their homes. No permanent miners are to be found in the locality, and only a very small proportion of the labourers remain on the premises for a period of 8 months out of the year.

The conditions under which the men live at the mines leaves much to be desired. No properly constructed habitations or barracks in which they can pass the night are to be found in the vicinity of the mines, they simply have to put up in hovels or in the galleries which are damp, and where they are at all times exposed to the danger of landslips, &c. They eat but little, content themselves with maize cake, a few drops of inferior wine, and it is only on feast days they allow themselves the luxury of eating meat, which is sent them by their families or near relatives.

Wages.

Although the rate paid for the production of the ore is comparatively speaking small, yet in view of the scanty requirements of the population it suffices to form a source of support for the short-landed peasantry of the district of Sharopan.

Transport.

The transport of the ore from the mines to Chiatur is a matter of essential importance to the population, since it gives a labourer, possessing a pack horse, the possibility of earning 5*s.* per diem for the eight trips which he is able to accomplish between the mines and that village, from sunrise to sunset.

The transport of the ore from Chiatur to Kvirili is not so profitable, the distance is much greater, and under the best circumstances a man with his horse can only gain 1*s.* 7*d.* per day; an Imeretian two-wheeled vehicle, commonly called an Arba, and drawn by two buffaloes, earn 2*s.* 6*d.*; and a Georgian Arba, which is of somewhat larger dimensions than the Imeretian cart, gets 4*s.* 2*d.* for each trip made to the railway station.

Royalties.

The landowners, as already mentioned, receive payment for the lease, or the right of excavating mines on their lands, at the rate of 2*l.* per cubic sajen of $22\frac{1}{2}$ tons of pure ore, and it is calculated that at this rate they, on an average, receive $\frac{1}{2}$ *d.* for every 36 English lbs. of ore produced, which, roughly estimated, brings them in an annual income of about 60,000*l.* From the present year, however, it is supposed that the revenues obtained by the landowners from this source will, at the very least, be doubled, even if the rate paid is allowed to remain at its original figure which can hardly be hoped for. The immediate result of the construction of the Chiatur line

will be the extension of the exports of the ore, the augmentation of the compensation at present paid to the landowners for their plots, the increase of the area of land now worked, and the swelling of the income of the landowners.

Calculating the price for the lease of land to be a $\frac{1}{2}d.$, the cost of procuring ore at the mines $\frac{3}{4}d.$, cartage to Chiatur $1\frac{1}{2}d.$, its transport to Kvirili $5d.$, railway freight from Kvirili to the sea-board $\frac{3}{4}d.$ including export duty, and an additional $\frac{1}{2}d.$ for loading and discharging expenses, the cost of the ore delivered at Poti or Batoum is $8\frac{3}{4}d.$ for every 36 lbs. avoirdupois weight. $8\frac{3}{4}d.$ multiplied by 62 poods of 36 lbs. avoirdupois to the ton is equal to 2l. 5s. $2\frac{1}{2}d.$ per ton of 50 per cent. metallic contents, which is equivalent to 10·85d. per unit and ton f.o.b. Poti, humidity and loss in weight during the transit of the ore excluded. At 11d. per unit and ton at Poti, humidity and loss included, the producer sustains a loss, and in fact nobody can afford to sell the ore for prompt delivery at these figures; but this rate is only established in view of the impending completion of the railway, which, it is stated, will commence traffic along the whole of its length in October (O.S.), when the price for the transport of the ore from Chiatur to Sharopan (near Kvirili) will be subjected to a reduction of 3d. per ton.

All these figures are based on a minimum cost of transport, and on the supposition that the ore is procured under the most favourable conditions; but should a rise in the cost of transport from the mines to the village of Chiatur take place, as was the case in the autumn of 1891 in consequence of the defective state of the cattle tracks, or should the railway not be completed in time, the producers will sustain considerable loss. The prices of the ore are determined by England, which, as has already been said, is the largest consumer, and the average rate of freight paid from the Black Sea to the United Kingdom or Continent is 12s. 6d. to 13s. per ton.

The ore obtained in the Chiatur mines, when thoroughly well prepared, comprises 54 per cent. to 55 per cent. of metallic contents, or 83 per cent. to 87 per cent. of peroxyde when dried at 212° Fahr., and never over 0·16 per cent. of phosphorus. This is the standard quality of the Chiatur ore, but it is brought down to 50 per cent. metallic contents by the admixture of an ore of inferior quality which is obtained at a very low price, and thus enables the producer to dispose of it at a reduced rate. It is, therefore, to be recommended that on the arrival of Trans-Caucasian ore in the United Kingdom preference should be given to Government samplers and analysers holding official positions, and that the services of private samplers who are aware of the admixture, and when sampling for the analysers select the heavier pieces of ore, should be avoided.

Henceforward it is surmised that the Caucasian manganese ore industry will enter a new phase of development. The Chiatur branch railway which is destined for the exclusive conveyance of the ore from the above village to Sharopan is

approaching completion. At Chiatur the ore will be loaded into trucks and transferred into wagons at Sharopan for further transport to the seaboard, viz., Batoum and Poti. There can be little doubt as to the importance of this railway for the regular development of the ore industry. It has already been mentioned that the chief obstacles met with were the difficulties and irregularities that existed in its transport at or near the mining district, its dependence on eventualities, and the sensible fluctuations of the prices charged for its conveyance to the main artery; but many people are sanguine that the railway will remove all these inconveniences and completely revolutionise the existing order of things.

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MARBLE QUARRIES OF MACAEL IN THE SIERRA
DE LOS FILABRES.

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SPAIN.

MADRID.

Sir H. Drummond Wolff to the Earl of Rosebery.

My Lord,

Madrid, March 28, 1893.

I HAVE the honour to enclose herewith a Report on the Marble Quarries of Macael, in the Sierra de los Filabres, which I have received from Mr. Vice-Consul Pecket at Garrucha.

This Report, which is of interest, has especial regard to the prospects of an increased working of these Quarries after the completion of the Railways now in progress of construction.

I have, &c.

(Signed) H. DRUMMOND WOLFF.

Report on the Marble Quarries of Macael.

ABSTRACT of Contents.

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Description, production, &c.	1
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The marble quarried at Macael may be described as common, Description. as distinguished from statuary, and is in much demand for such uses as flooring staircases, café tables, tops of furniture, mortuary slabs, baths, &c.

The present production may be estimated at about 1,000 tons Production. annually, but it is very difficult to find out the exact amount, as absolutely no statistics are kept. The quantities shipped coast-wise from 1881 to 1888 are shown in the following table:—

SHIPMENTS from Garrucha.

COASTWISE.

Year.						Quantity.
						Spanish Quintals.
1881	..	..	..	..	..	14,080
1882	..	..	..	..	..	14,615
1883	..	..	..	..	..	12,558
1884	..	..	..	..	..	15,303
1885	..	..	..	..	..	19,887
1886	..	..	..	..	..	7,818
1887	..	..	..	..	..	12,579
1888	..	..	..	..	..	8,184
Total						99,824

Exports.

Besides the above a considerable quantity is annually sent away from the quarries by road to Almeria, Granada, Lorca, Alcantarilla (for Madrid), Murcia, &c. The production has fallen off of late years because of the large stocks of Italian marble imported before the recent protective system was adopted in Spain, and the shipments from here have decreased proportionately. The figures for the last four years are as follows:—

COASTWISE.

Year.						Quantity.
						Spanish Quintals.
1889	..	..	..	..	..	6,292
1890	..	..	..	..	..	7,238
1891	..	..	..	..	..	682
1892	..	..	..	..	..	6,314

The stocks of foreign marble are now being worked off, and there is no prospect of further introduction except for statuary purposes.

The quarries are situated on the northern slope of Sierra de Los Filabres, at about 8 kiloms. south-east from the town of Purchena, in the Almanzora Valley.

Communication.

At present the only communication with the coast is by road to Garrucha and Aguilas, the former, which is the nearer port of the two, is about 60 kiloms. distant. The cost of carriage at present is 2 pesetas per Spanish quintal, or 44 pesetas per ton of 1,016 kilos., and the value delivered here 3·75 pesetas the cubic foot (169 lbs.), or somewhat less than 2*l.* per ton.

Railways.

There are two lines of railway in course of construction in this part of the province of Almeria, one from Almeria to Linares, the other from Lorca to Granada. The Almeria-Linares line, which

follows the course of the Rivers Andarax and Nacimiento, on the south side of the cordillera of the Filabres, does not pass within a practicable distance of Macael, as the nearest station, Gergal-Alcabillas, will be at least 55 kiloms. distant from the quarries on the opposite side of the range.

There is no road connecting the two points, nor would the construction of one be possible except at very great cost. The distance from this station to Almeria is 40 kiloms., and the tariff rate of transport is 0.175 peseta per ton per kilometre for worked, and 0.173 peseta for rough, marble.

The Great Southern of Spain Railway, at present opened for traffic as far as Casas de Almanzora, some 15 kiloms. from Macael, will pass within 4 kiloms. of the most distant quarries, at the station of Olula del Rio, up to which point it will probably be finished within a few months. The distance from this station to Aguilas is only 85 kiloms., and the tariff rate as low as 0.09 peseta, so that when this line is opened as far as Olula the cost of transport will be reduced so considerably as to induce a much larger production, and another reason for this will be the application of the new duties on foreign importation, which amount to as much as the marble is worth put on the railway.

If these duties have not yet been felt it is due to the stocks of Italian marble referred to above.

The road from the station to the marble deposits is a very bad Road. one, and it is not probable, owing to the spasmodic working of the quarries, that any other means of transport than bullock carts between these and the railway will be established. The steepness of the hillside is also against the adoption of more modern methods.

Another objection is the frequent concentration of a heavy Carriage. weight in one single article or piece.

It is impossible to say what will be the cost of carriage from the quarries to the station; very little will go direct. It first goes to the slabbing mills, where, by means of machinery moved by water power, the slabs and blocks are first cut and dressed and then sent off. Six of these slabbing mills exist in the neighbourhood of Macael.

The economy in the total cost of transport, when the railway is completed as far as Olula, will so reduce the present cost of the marble in question that it will be able to compete easily in the Spanish market with Italian marble. It is probable that it will never be much exported, as it is too hard for making "articles de luxe" in relatively cold climates. In Spain it will always be in demand for common uses, such as those indicated at the beginning of this report.

It has been estimated that the total importation of Italian Italian marble into Spain some years ago amounted to about 11,000 tons marble. annually.

A considerable part of this would be for fine uses, but how much it is difficult to say; at any rate, this figure seems to give the present limit of possible increase in this business. A prudent

estimate, therefore, would be, say, 75 per cent. of the present total consumption, so that an amount approximating to 8,000 tons per annum may be taken as the future output of the quarries in supply of the demand, when the railway is completed as far as the point indicated.

Import duties.

It has been pointed out that, owing to the heavy import duties, Macael marble may easily compete with Italian importations, but this will be the case only so long as the present rate of exchange does not increase so much that the Italians may still be able to compete successfully in the Spanish market.

In connection with the outside commercial interest that may be developed in these quarries, it should not be lost sight of that marble is placed among that class of substances, the ownership of which, according to the mining laws of Spain, goes with the land. The site of the deposits in question belongs to the township of Macael, and is, therefore, the property of each inhabitant of that town. That is to say that any inhabitant can, if he wishes, start a quarry, and hence it is evident that no legal title could be given by anyone endeavouring to make a sale of the quarries. It appears that, notwithstanding this, some of the more prominent inhabitants of the town have from time to time claimed certain quarries as their own, but it is very doubtful, however this may be tolerated amongst the inhabitants themselves, whether any clear title could be given to a purchaser. In fact, a proposed purchaser could deal with no definite personality.

Conclusion.

In conclusion, it may be well to add that, in dealing with the question of the development of these quarries when improved and more economical means of transport are provided, it should be borne in mind that these will also cause to be opened out new deposits, such as those of Lijar, Cobdar, and Purchena. There are also deposits much nearer the coast of similar quality to that of Macael as at Chive, Lubrin, Bedar, &c., which in time may be exploited and affect the output of the Macael marble quarries.

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No. 301.

SPAIN.

BARCELONA.

Consul Macpherson to the Earl of Rosebery.

My Lord,

Barcelona, August 15, 1893.

I HAVE the honour to enclose herewith to your Lordship a Report on the Textile Production of Catalonia, which shows that the manufacture of textiles in Catalonia has lately considerably increased; that the decrease of importation of foreign textiles into Spain is due to the fact of their having been substituted by Catalan textiles, which, owing to the late Spanish tariff arrangements, are at present more extensively sold than formerly; and that the increase of exports of textiles to the Spanish colonies is due to their increased production in Spain and to the tariff advantages they enjoy on their introduction into the Spanish colonies.

I have, &c.

(Signed) WM. MACPHERSON.

Report on the Textile Industries of Catalonia.

ABSTRACT of Contents.

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Introductory. The consumption of textiles in Spain is at present about the same as it was prior to the recent Spanish tariff arrangements, but the consumption of Spanish textiles is, undoubtedly, greater, this increase being, naturally, about equal to the decrease of importation of foreign textiles.

Exportation. The exportation of Spanish textiles to the Spanish colonies has, of course, greatly increased, owing to the advantages offered by the late tariff arrangements to Spanish manufactured goods; and numerous articles which were previously imported into the Spanish colonies from foreign countries are, since the late tariff is in force, received exclusively from Spain.

The prices of textiles in Spain, by what I have been informed, have not greatly altered, owing, probably, to the keen competition carried on by native manufacturers amongst themselves for the more rapid sale of their merchandise, a competition as sharp now as it was before between these same manufacturers and the importers of foreign goods into Spain.

Statistics. Through the kindness of the collector of customs of Barcelona, I am enabled to give the following statistics of the importation into, and the exportation from, Barcelona of cotton, hemp, wool, silk, &c., and of cotton, hemp, wool, silk, and other textiles during the first six months of the present year:—

IMPORTS.

Articles.						Quantity.
						Tons.
Cotton	..	..	..	..	..	82,422
"	yarns	..	..	..	..	220
"	textiles	..	..	..	..	418
Hemp, flax, jute, &c.	..	..	..	..	..	10,737
"	"	"	yarns	..	..	1,161
"	"	"	textiles..	..	..	47
Wool	..	..	..	..	..	595
"	yarns	..	..	..	..	37
"	textiles	..	..	..	..	43
Silk	..	..	..	..	..	3
"	twisted	..	..	..	..	14
"	textiles	..	..	..	..	12

EXPORTS.

Articles.						Quantity.
						Tons.
Cotton yarns	..	..	..	..	..	127
"	textiles	..	..	..	..	6,187
Hemp, flax, jute, &c.	..	..	..	..	..	12
"	"	"	yarns	..	..	246
"	"	"	textiles..	..	..	1,259
Wool	..	..	..	..	..	356
"	yarns	..	..	..	..	4
"	textiles	..	..	..	..	293
Silk, twisted	..	..	..	..	..	0.25
"	textiles	..	..	..	..	7

The above figures scarcely give an idea of the development of the textile industries of this district, which, as may be gathered from what follows, has been very considerable; and, as many of these industrial undertakings are yet in their infancy, and as many ventures are only preparatory for more serious work, there is every reason to infer that, unless checked by adverse circumstances, the manufacture of textiles of Catalonia will, at no very distant period, be able to compete in many cases, and even without any extreme protection with the products of other nations.

Cotton.

It is extremely difficult to obtain trustworthy statistics of the industries of Catalonia; and, specially so, statistics regarding the cotton industry, which is now carried on in very many towns of this province, and is at present the most important one of this country.

From the information which I have been able to obtain, however, it may be safely assumed that, since the late tariff has been in force, the production of cotton textiles in this district has increased from 15 per cent. to 20 per cent. of what it was formerly.

Many new manufactories for spinning and weaving cotton have been lately erected, and many are in course of construction, throughout this district. New factories.

Others already established have been enlarged and altered in order to obtain an increased production, or for the manufacture of articles which were not formerly produced. Progression.

At Barcelona, San Martin de Provenzals, Ripoll, Mataro, Manlleu, and in many other towns, these new factories are already at work.

In Ripoll three factories for spinning and weaving are also at work, and there is another one in course of construction with 600 horse-power engines.

In the district of Manresa, likewise, this industry has lately been greatly enlarged.

Many cotton stuffs which were not previously very extensively manufactured are so at the present moment, and it appears that they can well compete in quality with any similar foreign articles.

These stuffs are known here as "vichyes," "piqués," "brillantés," and "satines."

Hand looms have almost entirely been superseded by more modern appliances, and hydraulic power is almost entirely substituted by steam power.

Protection has, of course, brought about this increased prosperity for this particular district, but protection has, by what I have been able to gather, been carried, perhaps, too far, and by no means in every instance with absolute tact and discrimination. Protection.

One of the principal cotton manufacturers of this town, who produces a special article of dyed cotton goods, has confessed to
(1630)

me that instead of obtaining any advantage by virtue of the new tariff, his yearly profits have been, thereby, considerably curtailed.

The articles which he produces were sold in Spain prior to the recent tariff arrangements, fearless of any foreign competition, and he could export his merchandize to certain foreign markets, and there fairly compete with similar foreign products.

At present, as he cannot in Spain profitably raise the customary prices of these articles, the increase of duty for similar foreign merchandize is valueless to him; and on the other hand, as he is bound to pay increased duty on the chemical products he employs for dyeing his cotton stuffs, the increase of cost, which this extra duty entails, hinders him from competing as he did before in foreign markets, where he could a year ago dispose of his produce with a reasonable profit, though he had to sell them at somewhat lower prices than those at which he then sold them, and sells them now in Spain.

Linen.

British
linens.

The importation of British linens into Spain has been slowly but steadily decreasing for the last 20 years, owing partly to the competition of similar articles manufactured in Belgium, but chiefly to the gradually improving quality of Spanish cloth.

In the first 6 months of the year 1885, 1,099,500 yards of British linens were imported into Spain; and in the first 6 months of the present year only 277,400 yards have been sent from Great Britain to this country.

Importation.

This extraordinary decrease of importation is, however, more apparent than real, and is owing, in the first place, to the excessive purchases made in 1891 and in the beginning of 1892, in anticipation of the then impending rise in the duties on such articles on their importation into Spain, as all the purchasers ordered their linen goods far in excess of their requirements for the season, and naturally had larger stocks than usual on hand at the commencement of the present year; and in the second place, to the fact that the importers of linen are at present ordering forward only what they absolutely require for the moment, in hopes of a speedy reduction of the present duties, or of an important fall in the rate of exchange, which alone is a sufficient consideration to curtail business, as it now enhances the cost price of foreign merchandize by 20 per cent. at least.

Though the importation of British linens into Spain in the 6 months ending June 30 of the present year shows so heavy a falling-off, it must be borne in mind that, as stated, the importation of similar articles was in the first 6 months of the years 1891 and 1892 far in excess of the requirements of the country.

The importation in the first 6 months of the last 3 years was as follows:—

Year.						Quantity.
						Yards.
In 1891	..	..	..	..	..	879,600
1892	..	..	..	..	..	1,173,300
1893	..	..	..	..	..	277,400
Total	..	..	..	..	..	2,330,300

Or an average of 776,766 yards; and only 91,250 yards less than the average amount of British linens imported in the first 6 months of the 6 previous years as shown by the following table:—

Year.						Quantity.
						Yards.
1885..	..	..	..	..	..	1,099,500
1886..	..	..	..	..	..	1,102,800
1887..	..	..	..	..	..	829,400
1888..	..	..	..	..	..	767,900
1889..	..	..	..	..	..	707,500
1890..	..	..	..	..	..	701,000
Total	..	..	..	..	..	5,208,100

Or an average of 868,016 yards per year.

The present duties on most linen goods are, nevertheless, simply prohibitive.

This is admitted by everyone, and the manufacturers themselves frankly assert that they required no such extraordinary protection, and protest that they never asked for it, being well satisfied with the protection granted to them by virtue of the more rational duties fixed in the old tariff.

The steady decrease of the importation of British linens to which I have referred is still more evident if the different classes of linen are compared and not the total quantity.

Formerly, heavy and medium linens were largely imported but for some years past these have been supplied by Spanish looms.

White, grey, and printed drills, and grey and dyed linings Drills. formed, at one time, a considerable item in the import trade of linen textiles; but nearly all these stuffs are manufactured in this country, and chiefly in Catalonia.

Printed linens for shirts, and lawns for ladies' dresses were, also, articles largely imported formerly, but they have been gradually superseded by cotton stuffs.

Every circumstance appears to point to a decrease of British linen imports into Spain, and even if the present duties were reduced to those leviable by the old tariff, it is very doubtful if the importation would increase.

Tarif.

Of course, if the duties of the present tariff are to continue much longer, a complete cessation of the trade in a very short space of time is almost a necessary consequence.

Wool.

The importation of foreign unwashed wool into Catalonia this year has been considerably reduced, owing to the increased rate of duty it has now to pay on its introduction into Spain, and, perhaps, to other causes; and the wool produced in Spain is, consequently, almost exclusively employed by native manufacturers.

In the first 4 months of the present year the value of the entire importation of foreign unwashed wool amounted to a little over 1,000*l.*, against over 30,000*l.*, the value of foreign unwashed wool imported in the first 4 months of last year.

**Pure wool
textiles.**

The importation of washed wool has, also, diminished, though by no means in an equal ratio.

The importation of textiles of pure wool during the first 4 months of the present year has amounted to about 23 tons against 126 tons imported in those same months last year, and that of textiles of wool and other materials to 113 tons against 422 tons.

In this district the manufacture of woollen textiles has increased more rapidly, perhaps, than any other similar industry in this country.

From the information which I have been able to obtain it appears that the production of Catalan woollen textiles has about doubled within the last 4 years; and, moreover, several factories are obliged to work overtime in order to fulfil their present engagements.

Exhibition.

During the exhibition held in this town in 1888 the woollen textiles of Catalonia became better known, and, it appears, more highly appreciated than they had been formerly.

Several merchants from South America and from Mexico who visited Barcelona that year, were induced to accept trial consignments of Catalan woollen textiles, and the results of such ventures have been extremely favourable for the woollen industry of this district.

I am assured that the consumption of Catalan woollen textiles in Mexico, in the Argentine Republic, and in Brazil is at present as great as, if not greater than, the consumption of these same textiles in the entire Spanish peninsula.

New manufactories for spinning, weaving, and dyeing wool have been lately established in the neighbouring towns of Sabadell, Tarrasa, and San Martin de Provenzals, and several more are to be erected when the necessary preliminary arrangements have been concerted.

Silk.

The manufacture of silk stuffs has also been considerably developed during the last year. Manufactures.

Three manufactories of silk lace (Blondas) have been lately established, two at Barcelona and one at Gracia, and several others for spinning and weaving at Manresa, Gracia, and other towns.

In one of these manufactories imitation Manila shawls are now manufactured.

Many manufactories of silk stuffs, which were already established, have been greatly improved, and a larger amount of capital, consequently, invested in them; and many stuffs are now produced which were not manufactured in this district a year ago.

The manufacture of silk ribbons has been also greatly developed of late, and it appears to be a thriving business.

Large orders have been received which cannot be executed, purely for want of skilled labour, and more than double the quantity now produced might be disposed of if the necessary skilled workmen could be found. Want of skilled labour.

Silk braidings are likewise now manufactured in this district in one of the factories previously established for the manufacture of other silk articles, and another new one for the manufacture of braids exclusively is to be erected shortly at Gerona. Braidings.

Aloe, Jute, Ramie, &c.

The manufacture of aloe, jute, and ramie textiles has, likewise, greatly increased, and in one of the most important factories in this town, where jute fabrics are largely manufactured, a new steam engine of 800 horse-power has been lately fixed, and carpets and stuffs for curtains of mixed materials are very extensively manufactured. Aloe, jute, ramie, &c.

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S W E D E N.

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WORKING OF THE GOTHENBURG LICENSING
SYSTEM.

REFERENCE TO PREVIOUS REPORT, Miscellaneous Series No. 184.

*Presented to both Houses of Parliament by Command of Her Majesty,
FEBRUARY, 1893.*

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S W E D E N .

STOCKHOLM.

Sir F. Plunkett to the Earl of Rosebery.

My Lord,

Stockholm, January 20, 1893.

I REGRET the delay which has occurred in my answering your Lordship's instructions of November 25, desiring me to make inquiries and report on the working of the Gothenburg system of licensing both in Sweden and in Norway since the date of the Report I had the honour of addressing the Marquis of Salisbury in 1890. I have invited the opinion of persons interested in the system as to their idea of the possibility of its adoption in Great Britain.

Two difficulties are of course patent to every one—first, the immense adverse local interests, which would have to be in some way compensated or gained over; and, secondly, the loss which the Revenue would have to bear of the large amount now received from the trade in spirits, and which would have to be compensated by other taxes, probably pressing more directly on the general body of taxpayers.

But in one case an objection to the introduction of this system into Great Britain, or into any other Country possessing large and rich Towns, was offered by a Swedish gentleman, who is a strong supporter of the system in these Kingdoms.

This objection is that in any very large Town the amount of money gained by, and the amount of patronage connected with, the monopoly of a sale of spirits would be so great as to offer to the members of the local Governing Bodies opportunities for dishonesty which might lead to disastrous results.

These Scandinavian Towns, as a rule, are small: Stockholm has a population of about 250,000; Christiania, 150,000; Gothenburg, 108,000; Malmö, 49,000; but by far the greater number both of Swedish and Norwegian towns have a population of under 25,000 inhabitants.

I have not heard this objection raised before, but it seems worth submitting to the consideration of those who wish to study this question.

That drunkenness has greatly decreased both in Sweden and Norway during the last 25 years is a fact patent not only from statistics, but from the evidence of every-day life.

Whether, however, this improvement is entirely due to the introduction of the Gothenburg System of licensing, as its advocates maintain, is a question upon which opinions differ.

The Gothenburg system affects the sale of spirits only, and has no control over that of beer. Moreover, it practically affects only the sale of spirits to the poor or the lower artisan class. Its provisions do not affect those sufficiently well off to purchase one litre of spirits at a time, which they can take home and drink how and when they choose, but it does throw difficulties in the way of procuring spirits in small quantities, and it removes most of the extraneous temptations to spirit-drinking, which are found so baneful elsewhere.

Thirty years ago the general habits of Sweden were far from temperate. It is no longer the fashion to drink to excess, as was formerly not only tolerated but expected on certain festive occasions. Times have changed, and sobriety, from being the exception, has become the general rule.

On the upper and middle classes the Gothenburg system can have no influence, for it is their wine or spirit merchants who have to comply with the forms required by the system, and the only point on which a well-to-do customer is ever inconvenienced is that he cannot purchase, say, one half-bottle of liquor or spirits; he must purchase enough to make up the legal minimum quantity of one litre.

It is contended, therefore, that as other causes have made the upper and middle classes more universally sober, their examples, and possibly the same causes in a lesser degree, have acted also on the poorer or artisan class, and that it is not fair to attribute entirely to the introduction of the Gothenburg system an improvement to which the increasing influence of the numerous Temperance Societies and other Benevolent Associations have largely contributed.

I transmit herewith the short Report which I have written as regards Sweden.

I have not yet received the Report which Mr. Consul-General Michell is drawing up on the working of the system in Norway.

I have, &c.
(Signed) F. R. PLUNKETT.

Report on Working of the Gothenburg System in Sweden for last Two Years.

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As regards any special features developed during the past two years in the working of the Gothenburg system of licensing, I hear from all quarters that it continues to be, in Sweden, as completely satisfactory as ever. There is, therefore, nothing of immediate interest to add to my previous report, except to point out what was not there made clear, that the contract between the Town Council and the company is not necessarily one of long duration, and that, in Stockholm for instance, the contract may be put an end to by arrangement between the governor and the Town Council at the end of any of the 3-year periods for which in each case the contract is renewed. The company cannot claim compensation for such refusal.

Results continue satisfactory.

Nothing special to add to Report of 1890.

Contracts are made only for short periods.

In the smaller Swedish towns I understand the contract runs generally from year to year; there, as in Stockholm, it requires that the governor of the district and the Town Council should unite in agreeing to put an end to the contract.

I think it right to call attention to this point. It amounts practically to a modified form of "local option" in regard to the traffic in spirits.

Local option.

The "option" in Sweden is exercised not by popular vote but by the joint vote of the Government authority on the spot and the elected municipal councillors of the town.

The following return, kindly furnished to me by Herr Rubenson, Director of the Stockholm Police, shows the number of convictions for drunkenness in this town from the years 1873 to 1891. The returns for 1892 are not yet completed, but I am told by Herr Rubenson that the population may be counted at 250,000, and the convictions for drunkenness at something over 8,100.

Returns of drunkenness.

Year.	Population of Stockholm.	Convictions for Drunkenness.
1876	147,522	5,718
1877	153,528	6,983
1878	161,722	6,049
1879	165,040	5,948
1880	167,868	6,285
1881	174,702	6,207
1882	182,358	6,851
1883	190,842	6,422
1884	200,781	6,564
1885	211,138	4,696
1886	216,807	6,249
1887	221,551	7,262
1888	228,118	7,644
1889	236,350	7,938
1890	245,331	8,461
1891	248,051	8,143

Weak point of
the returns.

The weak point of the above and all similar returns as an argument for or against the Gothenburg system is that they cannot distinguish between drunkenness from spirits and drunkenness from beer.

Beer.

In Sweden the sale of beer is not under Government control, there is no excise duty on either beer or malt, and a very small licence-fee for retail traders is all that is required.

The fundamental idea of the Gothenburg system is "no profit to the sellers." The principle is rigidly applied in the sale of spirits, but is in no way whatever applied to that of beer. In the company's own shops the manager, who is hampered by many minute rules in regard to the spirits he sells, from which he has no profit, is absolutely free to sell as much beer as he likes, and he retains all the profits.

He is certainly prohibited from selling beer to children or to persons already visibly the worse for liquor, but, with this exception, he can do what he conceives to be best for his own private interests.

Strength of
beer in
Sweden.

The beer used in Sweden is of a light character. It seldom contains more than 7 per cent. of alcohol, and much of that consumed under the name of "Svagdrick" contains only about 3 per cent. of alcohol.

Pauperism.

A pamphlet has been lately published in England by Mr. Mortimer, Secretary of the County Brewers' Society, in which he calls attention to the great increase of pauperism in Gothenburg, as shown by the following table which he quotes, and whence he argues that pauperism is making greater progress in Gothenburg than in England, as in Great Britain the proportion of paupers in 1891 per 1,000 inhabitants was only 26.6, while this return shows it to have been in Gothenburg in the same year 114.1 per 1,000.

The following table of statistics shows the number of convictions for drunkenness and the number of paupers for each year beginning with the year 1865, during the first nine months of which the company was not in existence:—

Year.	Population.	Convictions for Drunkenness.	Number of Paupers.
1865	45,750	2,070	..
1866	47,332	1,424	3,238
1867	48,898	1,375	3,479
1868	50,488	1,320	4,179
1869	52,526	1,445	4,441
1870	53,322	1,416	4,723
1871	55,110	1,531	4,475
1872	55,986	1,581	4,523
1873	56,909	1,827	4,765
1874	58,307	2,234	5,353
1875	59,986	2,490	5,669
1876	61,505	2,410	5,701
1877	63,391	2,542	5,783
1878	65,697	2,114	6,094
1879	66,844	2,059	6,158
1880	68,477	2,101	6,607
1881	71,533	2,232	7,134
1882	72,555	2,096	7,317
1883	77,653	2,364	7,373
1884	80,811	2,375	7,424
1885	84,450	2,475	7,584
1886	88,230	2,776	7,977
1887	91,396	2,921	8,184
1888	94,370	2,922	11,444
1889	97,677	3,232	10,768
1890	101,502	4,010	10,631
1891	104,251	4,624	11,900
1892	106,000	3,735*	..

* This number is made up to October 31—i.e., for 10 months only.

On enquiry at the Statistical Department I have been informed that the reason of the great increase shown since 1887 is that the returns are now made up on a different basis from formerly, and they also say that the Swedish term "Fattige" (poor persons), which in the above table has been translated "paupers," does not correspond exactly to what in English returns is denominated "pauper." In the Swedish returns are included all persons who have received assistance from the "commune" during the 12 months, and, if a man receives such assistance, not only he himself, but his wife and children are at once put down on the list of "Fattige."

Explanation
of apparent
increase in
pauperism.

Pauperism, of course, exists in Sweden to a certain extent, but, as compared with that of large British towns, the condition of those of Sweden is remarkable from the absence in any number of hungry and needy poor.

The directors of the company possessing the monopoly for Stockholm, present an annual report which appears unfortunately only about the month of February. I cannot, therefore, give any statistics of the working of the system here for 1892, but I extract from their report for 1891 a table showing the amount of net profit resulting from the company's sales, which was handed over to the Stockholm municipal chest in the years 1885-1891.

Stockholm
Report for
1892 not yet
available.

Year.					Amount.	
					Currency.	Sterling.
					Kronora.	£
1885	..	..	..	..	1,182,421	65,690
1886	..	..	..	..	1,191,448	66,191
1887	..	..	..	..	1,392,706	77,372
1888	..	..	..	..	1,477,297	82,072
1889	..	..	..	..	1,338,953	74,386
1890	..	..	..	..	1,565,515	86,973
1891	..	..	..	..	1,304,805	72,489

The directors in their report for 1891 state the consumption of spirits per head of the population had again commenced to diminish, and express the opinion that the exceptional increase, which had been noticed in 1890 was of no importance, and is no sign of any permanent increase in the consumption.

Regulations
for sale of
wine, beer,
or coffee in
Stockholm.

A translation, hereto annexed, of some alterations lately introduced in the regulations respecting the sale of wine, beer, or coffee in Stockholm and its neighbourhood will show how beer is grouped with non-alcoholic drinks, and how little control is exercised ever its sale.

Beer tax not
improbable.

A change may not improbably be attempted in this respect before very long. It is rumoured that an excise duty on the stronger kinds of beer may be proposed to cover part of the deficiencies introduced into the budget by the abolition of certain military taxes and servitudes.

The following extracts of despatches, which I have received from Mr. Consul Duff, show that at Gothenburg and the towns in that district the same confidence as hitherto continues to be felt in the efficacy of the system as a promoter of temperance.

Mr. Duff writes, "The total quantity of all kinds of spirits sold by the company in Gothenburg has gradually decreased from 1,622,663 litres in 1890 to 1,441,517 litres in the present year (1892), whereas the convictions for drunkenness have increased from 4,010 in 1890 to 4,624 in 1891. With a view of obtaining the most reliable information as to the cause of the increased drunkenness, I have had an interview with Mr. A. O. Elliot, the chief of the Gothenburg Police, who assures me that it is entirely due to the enormously increased and unregulated sale of beer, some of the beer sold here containing upwards of 6 per cent. of alcohol. The labourers go to the company's shops, where they take a glass or two of brandy, and then to the beer shops, where they, as a rule, get drunk. The retail sale of beer being entirely free, this article is also bought to a great extent from the victuallers and consumed outdoors or in the labourer's home, and in support of this assertion Mr. Elliot called attention to the fact that women are now frequently apprehended for drunkenness here, which never or rarely was the

case some years ago; and as the women as a rule never taste spirits, nor are ever seen in the company's shops, the drunkenness among them must be put down to the consumption of beer. A beer tax and the regulated sale of beer, Mr. Elliot thinks, will put a stop to the abuse.

"Fully sharing Mr. Elliot's views, I am of opinion, from personal observation and experience, that the company has been the means of great improvements, which I doubt anybody can deny, although from circumstances beyond the control of the company drunkenness is still considerable here."

The Vice-Consul at Malmö reports, "As far as I am able to judge, the general impression of the working of the license system adopted for regulating the sale of intoxicating liquors is a very good one, and this impression has by no means been checked or diminished during the last two years."

The Vice-Consuls at Landscrona and Stromstadt report in similar terms of the general satisfaction caused by the working of the system in their respective localities.

The Vice-Consul at Uddevalla states, "The company still continues its useful work, and is thought by everyone here to contribute to hinder the excessive use of ardent spirits, and it would be a great danger to society if this company was now suppressed."

"Ardent spirits are now almost exclusively sold in the towns, as the old life-rented licenses in the country have fallen in by death, so the rural population are compelled to buy what brandy they may want in the towns which thus may show more drunkenness, though it has almost entirely ceased in the country districts."

"Much insobriety of late is attributed to the use of ale, which has increased much of late; our ale is said to contain 4 per cent. of alcohol."

"The sale of ale is not subject to such strict rules as are enforced on that of spirits, and it is to be had at many places. Women and children do not feel themselves disgraced by drinking ale, as they would spirits."

In closing this brief report on the working of the Gothenburg system during the last two years in Sweden, I beg to call attention to two things, first, it is a voluntary arrangement come to by the head Government authority and the local municipal authorities in each town or district; it has not been established by any direct action of the Riksdag.

Secondly, that in no place, where the Gothenburg system of licensing has been introduced, is any desire expressed to go back to the former state of things.

Concluding
remarks.

Précis
translation.

REFERENCE to Royal Decree of July 10, 1891, amending Royal Decree of October 24, 1885.

The Governor-General's Ordinance of March 31, 1886, regulating the sale of wine, malt liquors, coffee for drinking, and other non-spirituuous liquors for consumption on the premises in the district of Stockholm is amended as follows:—

Amended Article 14.

(1) If irregularities or improper conduct of any kind should continue after a warning given by the Governor-General so that it appears that the manager of the shop where malt liquors, &c., are sold, is an unsuitable person, then the Governor-General, after first giving a hearing to the owner of the business, can cause the shop to be closed.

(2) A person thus prohibited from continuing the business can only obtain a new license after the expiry of one year.

(3) If disturbances arise in licensed premises outside the town at fairs, camps or other military meetings, or any occasions when crowds assemble, the police, after giving a warning, can, if the disturbances continue, at once forbid, and if necessary prevent, the continuance of the business.

Amended Article 15.

(1) If a man keeps wine or malt liquors for sale not for consumption on the premises, and it appears that this leads to illegal consumption or other disorder, the Governor-General can for a limited time, or altogether, forbid him to continue the sale, or only allow it under such limitations as may seem necessary. This regulation does not affect the sale, not for consumption on the premises, of malt liquors or wine at the manufactory.

(2) The Governor-General has the same rights as the above in the case of wandering drink-sellers or their employers outside the limits of the town, but as in the former case not inclusive of manufacturers sending their productions for sale inside houses or on ships.

(3) If, notwithstanding a prohibition, selling drink is continued, the offender is liable to punishment for unlawful sale.

(4) If disturbances continue, after a warning, in a place or fair outside the town where crowds assemble, and this be owing to the sale of liquors (not spirituuous) the police can forbid, or if necessary prevent, the continuance for the time being of the sale of such liquors.

Amended Article 16.

(1) When a man is deprived of his license, his wife living with him is equally affected by the prohibition to sell, and vice versa when the wife loses her license.

(2) A man is responsible for any infraction of a prohibition to sell, committed with his knowledge by wife or servant.

Amended Article 22.

This notification is not applicable to licensed innkeepers, and in general it is not applicable to persons who in a trifling way sell malt or non-spirituuous liquors, by carrying them about or from a table or in other similar ways. However, in the case of places where crowds are assembled outside the town, it may be applied in order to prevent disturbances even in the smaller cases of sale of such liquors.

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REPORT ON THE
WORKING OF THE STATE BANK IN SWEDEN.

*Presented to both Houses of Parliament by Command of Her Majesty,
MARCH, 1893.*

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No. 278.

SWEDEN.

STOCKHOLM.

Sir F. Plunkett to the Earl of Rosebery.

My Lord,

Stockholm, January 19, 1893.

WITH reference to your Lordship's Despatch No. 33 Commercial, of September 27, I have the honour to enclose an exhaustive Report, which has been prepared by Mr. Gough, Her Majesty's Secretary of Legation, explaining the Rules and Working of the State Bank in Sweden.

I venture to think this Report will have interest for the home authorities, as well as for the Government of South Australia, for whose use your Lordship had instructed me to furnish the information.

I have, &c.
(Signed) F. R. PLUNKETT.

Report on the Working of the State Bank in Sweden.

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No share-
holders, State
being sole
proprietor.
Bank has a
few funda-
mental laws,
but subject to
them is
managed by
Parliament
apart from
the Govern-
ment of the
day.

The State Bank of Sweden belongs exclusively to the State and has no shareholders, the only other countries in this position being Russia and Finland.

The State Bank is under the sole control of Parliament, excepting as regards some of its rules which have the character of fundamental laws, for instance: (1) the rule that its notes are legal means of payment; (2) its obligation to exchange its notes for gold coin on presentation; (3) the amount of its capital and reserve fund; and (4) the obligation to publish monthly and yearly an account of its position.

All other provisions are decided by Parliament, or by the Committee annually named by Parliament, and Parliament also nominates the directors of the bank, and looks after and controls the management.

Whilst ordinary laws are issued by the King as being expressions of his will, the consent of Parliament being merely intimated, His Majesty in the case of Parliamentary Orders concerning the bank only acts as a channel for notifying such orders to the public, so that he has little or no responsibility, nor has the Ministry in power. It has often been proposed to abolish the direct management of the bank by Parliament apart from the King and Government of the day, but things seem likely to continue as they are for many years.

Bank's
capital and
reserve.

The amount of the bank's legal capital is 2,500,000l. (45,000,000 kronor), and its legal reserve fund is 277,778l. (5,000,000 kronor).

These amounts, in which the bank's real property, furniture, and coin collection may not be reckoned, may never be reduced excepting when losses have occurred which cannot be paid for out of any profits, whether profits in hand or profits realisable in advance.

In such exceptional cases the deficiency is to be paid out of the reserve fund, but the reserve fund must then be recouped out of the first available profits.

Comparison
between
Swedish and
other State
banks.

The best State banks confine themselves to very much the same business in every country.

On the one hand, there is the receipt of deposits without

interest, and the issue of notes; on the other hand come the discounting of short bills and other paper, also short-termed loans against the deposit of securities (not, however, hypothecary or mortgage loans, even for short terms, as such loans are, in practice, always expected to be renewed and cannot be repaid in times of stress). State banks also buy and sell securities and precious metals, take the custody of valuables, do some commission agency business, and such business as is connected with the holding of current accounts. The Bank of Sweden, however, differs in one respect from other first class banks in that it pays interest on deposits, both for fixed terms and on current accounts. A Committee has proposed to abolish such payment of interest as obliging the bank to lend out more of the money deposited than would otherwise be the case, but there are no signs of this recommendation being accepted.

The Swedish State Bank is also considered a regulator to ease Swedish financial relations with foreign countries, and to prevent sudden steps from great abundance to dearth of money and vice versa.

The interest paid at present (December, 1892) on current accounts is 2 per cent., and on deposits from 2½ per cent. to 3 per cent. according to the terms.

Interest on
current
accounts and
deposits.

Deposits are seldom made in Sweden for more than 6 months certain, nor would any higher interest than that offered for a six months' deposit be offered for a longer term deposit. The practice of depositing money on interest at banks is more prevalent in Sweden than in any other European country. It may be mentioned here, however, that the amount deposited for fixed terms at the private banks is 40 times as large as the amount deposited in the State Bank.

In the course of this report the system of lending money on another person becoming surety for its repayment is more than once alluded to, and in Sweden this is a very prevalent way of raising money.

Loans on
personal
security of a
surety.

It will be remembered that the same practice was universal in Ireland during the seventies, though it has now ceased there; but in Ireland it was the ordinary joint stock banks that acted thus, while in Sweden the State Bank is in the habit of lending money in that way as well as the private banks.*

The Swedish State Bank has its uses and advantages, but it must not be considered as undertaking the post of universal benefactor. What it undertakes it does well, perhaps no bank in the world better, but there is a vast branch of business associated in the public idea with business of banking which the Swedish State Bank does not pretend to touch either as a help or as a hindrance. This untouched business is that of commercial advances on fair though partially speculative business.

The bank does
not take
business into
which an
element of
speculation
enters.

Any one requiring an advance from the Swedish State Bank

* The State Bank can, however, only lend on such security in conjunction with a sinking fund, and the private note-issuing banks are prohibited from lending more on such security than the equivalent of 10 per cent. of their capital.

must either deposit absolute security of his own, or an assignment of absolute security obtained from another party, or a guarantee from an absolutely safe surety.

The bank, therefore, practically suffers no losses, and is a perfectly safe place to deposit money while giving a really high interest, comparatively speaking. In this last way it is of great use to the public.

Then for non-commercial people who can give full security and want an advance on low terms, the bank is a ready and willing support, refraining as it does from taking much advantage of any temporary dearness in the money market, or of any outside circumstances unfavourable to the borrower, so long as he can deposit something of sufficient value (even, it will be seen further on, a heap of old iron). The services of the bank in this respect are highly and deservedly appreciated in the country districts and small towns. Quantities of people in the country from time to time desire an advance for a temporary purpose, and instead of having the trouble and vexation of selling—it may be Consols or it may be iron palings—are able merely to deposit them and get them back again in a few months when their temporary need is at an end and they can repay the advance.

The State Bank does not try to make money in the purely business sense of that expression; it allows the most tempting opportunities to pass by untouched. It cannot, indeed, help, nor does it object to, having a fair surplus of profits every year, but is alarmed if they run up too high. The same thing was noticed in the early days of the great distributive co-operative societies in London, where there was no wish or intention to make any profits whatever, or at most 5 per cent., and yet the profits accumulated to an inconvenient extent.

Some Swedes, less far-sighted than the average of their countrymen, have gone so far as to ask what good the bank does that the other banks would not equally effect, and the answer is that, were it not for the State Bank, other financial institutions would not or could not resist occasionally taking advantage of moments when money was dear or when a borrower was disadvantageously situated.

Advantages
of the State
Bank.

Not only does the State Bank keep the market steady in Sweden, but it is of vast use, in a way not always understood by its detractors, in keeping exchange with foreign countries from unnecessary fluctuations. Its rather dignified proceedings are not allowed to be affected by unauthorised rumours on the Bourse or unfounded telegraphic announcements.

It is the oldest of the banks now existing in Europe. Its employes enjoy the prestige of being members of the Civil Service of the Crown. They get slightly better pay and pension than the employes of private banks; the latter indeed not being too well remunerated in Sweden, where integrity, being almost universal, does not command special remuneration.

Business left
over to other
banks.

The State Bank leaves a large field of business unworked, but this field is suitably occupied, firstly, by private banks having a

right of issue safeguarded by a good deal of State control,* and by the unlimited liability of the shareholders; and, secondly, by company banks doing some *crédit-mobilier* business, and having limited liability, but not enjoying the right of issue.

About 30 years ago there were attempts to introduce the French system of *crédit-mobilier* banks doing a more or less speculative business on a large scale, but nothing came of it, and all Swedish banks have gone back to steady if humdrum business. The rate of interest either on regular investments or on commercial paper is very little, if at all, higher than in England, and if the State Bank shows a lack of enterprise it is because a spirit of enterprise is not called for by public opinion.

The State Bank is managed by seven directors elected annually by Parliament, but re-eligible, and, in practice, elected again and again for years.

Speculation
not cared for
by Swedes.

Management
of the State
Bank.

Any one of them must at once resign the appointment (a) if he become a Minister of State; (b) if he becomes bankrupt; (c) or make a composition with his creditors; (d) if he be prosecuted by the Public Prosecutor for any discreditable crime; (e) if he be condemned by a tribunal to deprivation of civil rights; (f) if he be convicted of bribery or violence at an election.

The directors undertake to obey the laws and the bank regulations, and to keep all things secret which ought to be so kept.

The directors elect two of their number to be managing directors, and another to be managing director of the bank note paper and printing establishments.

These three managing directors each enjoy one and a half months' leave in the year.

Description.	Amount.
	£
Each director receives yearly	222
Two managing directors, each an additional.. ..	444
So that the managing directors get (each)	666
One acting managing director, taking the place of the two above-named when on leave, gets an additional	167
Managing director of paper and printing works get an additional	55

The directors meet once a week or oftener; five form a quorum. In cases of urgency, however, four form a quorum and can decide matters if three of them be in agreement.

Requests for bill discounts and for grants of loans or credits are examined every week-day by a committee of at least four directors, including the two managing directors. The accommo-

* For further particulars see Report No. 948 of Foreign Office Annual Series, p. 20, published 1891.

dation can only be granted if the majority of directors present give their consent. Such requests must be kept secret, as is also the case with the directors' discussions and decisions about purchase and sale of bills of exchange regarding foreign coin and other valuables, about measures for sustaining the metallic reserve, and about the creation of bank notes.

The directors must see to the delivery without delay to the bank of gold received at the mint for coining or for any other purpose, and must enter in their books the value of the gold in Swedish coin without making any deduction for the expense of minting.

The directors must at least once a year make an inventory of all the contents of the strong boxes and deposit rooms at the head office, as well as of what is in the upper part of the head office itself. They can also make a similar inventory whenever they like at the branches, either by a director going in person or by sending a deputy.

The directors may not sell any of the real property of the bank without special permission of the Parliamentary Committee. Such real property, however, as has been taken over in payment of debts or satisfaction for mortgages may be sold.

The directors must at all times be ready to transport their chief valuables and papers to a place of safety within the kingdom; for instance, to the fortress of Carlsborg, where a special place of deposit is kept for them.

The Swedish State Bank has ten branches in all.

Management
of the
branches.

The board of management at the two chief branches, viz., Gothenburg and Malmö, consists of four members, and each of the other branches has a board of three members. These gentlemen are named by the directors for a year at a time, and can be dismissed at any moment and also re-elected several years in succession. One member of the board in each branch is appointed by the directors as managing member for current business.

The local boards meet at least once a month for general business, but they must meet daily to examine requests for discount, loans, and credits.

The boards can draw cheques of 55*l.* each on the head office, but only as required, that is to say, they may not draw a number of cheques to hold in reserve.

The pay of the members of the board varies, at Gothenburg they receive 133*l.* each per annum, while the managing director gets an additional 255*l.* annually, as well as a house.

At all the other branches the pay is considerably less than the above, each branch being treated independently in this respect.

The largest quantity of money lent out and paid back by any one branch in 1891 was 867,165*l.* lent out at Malmö, against 902,102*l.* paid back. The smallest amount was 48,453*l.* lent out at Vexió, against 47,311*l.* paid back.

For the sake of comparison it may be mentioned that, during the same period the head office lent out 1,708,073*l.*, and got paid 1,796,229*l.*

The following is the substance of the instructions issued yearly to the directors for their guidance:—

General
instructions
issued yearly
to the
directors.

1. The State Bank stands under Parliament's own guarantee and care in order that it may be governed in undisturbed quiet by the directors whom Parliament appoints, and in strict accordance with the rules laid down.

2. The duties of the State Bank are:—

- A. As a bank of exchange to keep the currency of Sweden at its right and reasonable value, and forbid and prevent the undue enhancement of the value of foreign coinages.
- B. As a bank of deposits to accept money from all desirous to deposit, and to open an account for the same, and at the request of the depositor* return the money, so that trade and the movement of money may be assisted by the credit, strength, and value of the drafts and assignments made upon the moneys thus deposited.

The bank shall also, as a security against violence and robbery, accept and take care of sealed packets containing money and other movable property.

- C. As a loan bank, to borrow capital lying idle, and also, upon reasonable terms and against thoroughly good security, to assist persons requiring loans, and thus by helping the rise and progress of commerce and all useful trades to prevent usury and the charging of unreasonable interest among private persons.
- D. As a State institution, to bring into existence, out of the profits caused by the inflow and saving-up of interest from loan operations, assets of which Parliament may dispose for the honour and welfare of the King and the country, and for objects useful to the public.†

3. The capital of the Bank, not reckoning its real property, furniture, &c., nor its cabinet of coins and medals, is 45,000,000 kronor (2,500,000*l.*). (The coin collection alluded to is worth about 1,500*l.*)

4. The reserve fund of the Bank is 5,000,000 kronor (277,778*l.*). It must hold good foreign Government paper to an amount at least equivalent to its reserve fund, and if such paper should ever have to be realised to strengthen the metallic reserve or for other reasons, so that less than the above-mentioned amount of foreign Government securities be in hand, then the directors are bound to bring the amount up again, as quickly as possible, to correspond with the fixed reserve fund. Surplus capital held by the Bank over and above the fixed capital and reserve fund may, in making up the books, be put down as assets in reserve.

* It is explained further on that no demand, order, or request of the depositor for the return of his securities is attended to, unless he can produce and surrender the original bank deposit receipt.

† The bank showed a clear profit of 198,500*l.* at the close of 1891 for that year and a profit of 155,000*l.* for 1892, though the figures for 1892 are not yet official.

5. The State Bank may issue notes to an amount equivalent to what it holds of the following assets, viz.:—

- (a) Metallic stock (counting as such Swedish or foreign coined gold, uncoined gold or silver coined in Sweden, Norway, or Denmark under the convention of May 27, 1873.)
- (b) Coined or uncoined gold deposited abroad, or on the way from thence, and insured against the perils of the sea.
- (c) Assets in current accounts lying at banks or business houses abroad.

Over and above the notes issued, equivalent to assets mentioned above in (a), (b), and (c), the State bank has the right to issue notes to an amount not exceeding 45,000,000 kronor (2,500,000*l.*) on condition that the extra amount thus issued shall be covered by the following three assets reckoned together, viz.:—

- (d) Easily realisable foreign Government paper.
- (e) Obligations of the Swedish State, of the Swedish General Mortgage Bank and other Swedish bonds quoted in foreign markets.
- (f) Bills of exchange payable within or without the kingdom.

Metallic
stock.

The metallic stock as above-mentioned must not be kept lower than 15,000,000 kronor (833,333*l.*). Moreover, when the extra bank notes issued against assets (d), (e), and (f) rise above 35,000,000 kronor (1,944,444*l.*), the bank must hold in metallic stock at least 30 per cent. of the amount by which the notes issued under this section exceed 35,000,000 kronor (1,944,444*l.*).

Gold metallic
stock.

That portion of the metallic stock which consists of gold must not be kept at a less proportion than four-fifths of the whole metallic stock.

On September 30, 1892, the Swedish State bank notes actually in circulation were in value 42,460,000 kronor (2,358,888*l.*), though the bank was then entitled to circulate 72,820,000 kronor (4,045,555*l.*).

At the same time their stock of gold was worth 16,880,000 kronor (937,777*l.*).

Other notes
in circulation.

Besides the 2,358,888*l.* worth of State bank notes circulating on September 30, 1892, there were, on that date, 3,339,444*l.* worth of private bank notes also in circulation.

In practice Norwegian and Danish notes circulate indifferently with Swedish notes, but that does not necessarily add to the total as Swedish notes circulate equally in those countries.

A tax has hitherto been paid by private banks of 3*l.* per 1,000*l.* on the highest amount of notes they have had circulating at any time during the year, but from January 1, 1893, the tax became 5*l.* per 1,000*l.*, or say half of 1 per cent. per annum.

Detailed
instructions
issued yearly
to the
directors.

In addition to the general instructions above given, a set of detailed instructions are yearly issued to the directors of the bank, and the following is the substance thereof:—

A.—On the keeping up of Metallic Stock, the Purchase and Sale of Gold and Silver, Foreign Bills of Exchange, Bonds, and Government Securities.

The directors shall decide as to the purchase or non-purchase, as also the price to be paid for foreign coined gold and silver not current in the kingdom (*i.e.*, not Norwegian or Danish).

Gold in bars brought to the mint for the bank is exchanged for its value in Swedish coin, or 2,480 kronor (137*l.* 15*s.* 7*d.*) per kilo. of fine gold after deduction of a $\frac{1}{4}$ per cent. for expense of minting, the directors taking care, so far as they can, that a sufficient supply of gold coins may be always in hand so as to allow of payment being made immediately after the gold bars have been deposited and the calculation has been made of their value in coin. The directors may also, upon examination of each separate case, and upon finding it advantageous for the bank to do so, excuse the seller of gold from paying a part or the whole of the cost of minting.

Charges of mint for coining gold may be relaxed, or even removed altogether.

The directors are likewise empowered to consider and determine whether uncoined silver shall be bought and at what price.

Bars of gold and silver are kept at the chief office of the bank, in such quantity as may be convenient, for sale at a price to be fixed by the directors.

The directors are authorised to buy and sell bills payable abroad and drawn for six months or for a shorter period, and to take over foreign paper and to sell it. They can also buy or sell, both at home or abroad, or act as intermediaries for the purchase or sale of home or foreign securities and Government paper.

The directors may keep the bank's stock of foreign securities at known and safe foreign banks or business houses, and draw upon these deposits or otherwise use them for strengthening of the gold and silver stock in the State Bank. Any gold or silver conveyed by sea must be insured.

The directors may open current accounts in the books of the State Bank with respectable and safe foreign banks and business firms on conditions to be decided in each particular case, and where they think it desirable they may make temporary advances on these accounts.

If the metallic stock as a whole, or merely as regards gold, shows a tendency to sink to the before-named lowest limit of 15,000,000 kronor (813,333*l.*), the directors must, in good time, take such measures as may be proper under the circumstances of the time, such, for instance, as the sale of bonds or Government securities, or the reduction of the note circulation by limiting their loan business, or else by the use of their credit abroad.

Steps taken when metallic stock declines.

The directors can, when they deem it necessary, have recourse to credit abroad in the shape of a loan or an advance not exceeding 17,000,000 kronor (944,444*l.*), and in such a case the King is

asked to let the loans be made in such a form as may be best while giving the royal guarantee to it.

B.—On the Notes of the State Bank; on Exchange of Coins and Notes, and other Modes of Payment accepted by the Treasurer of the Bank.

Note issue.

The bank issues notes of 5 kronor, 10 kronor, 50 kronor, 100 kronor, and 1,000 kronor (about equal to 5s., 10s., 5l. 10s., and 55l.) bearing on their face a promise to pay in gold coin. The signatures on the two lowest denominations are printed, but are written on all the others.

Sufficient supplies of each kind of coin must be kept at the head office of the bank, that is to say, 1 ore, 2 ore, 5 ore in copper; 10 ore, 25 ore, 50 ore, 1 kronor, and 2 kronor in silver; 5 kronor, 10 kronor, and 20 kronor in gold.

Private bank notes.

When deposits or payments are made at the head office or branches, the following may be substituted for coin or State Bank notes, viz., cheques, drafts, and bills of exchange of the State Bank or branches, also notes of such private banks as may, at the place where the payment is made, give daily opportunities for exchanging their notes against State Bank notes, and provided the directors consider that these private bank notes ought to be accepted. Bills issued by private money institutions may also be accepted if the officers of the bank approve.

The directors may also allow the notes of approved private banks to be accepted, notwithstanding there be no immediate possibility of exchanging them on the spot for State Bank notes, supposing it be for the convenience of regular customers that these notes be accepted, but the directors must make arrangements to have them changed into State Bank notes as soon as possible.

Cheques and bills of one branch received in another branch, as well as bills of private financial societies payable in Stockholm, must be at once despatched to the head office as cash, the cheques and bills of branches being first stamped in the branch bank which has collected them, before sending them off to the head office.

Bills of exchange of private firms payable elsewhere but in Stockholm must be cashed as soon as possible.*

Both the head office and the branches of the State Bank must be kept open every day (Sundays and holidays excepted) for as many hours as shall be determined by the directors.

The notes are re-issued until worn out.

C.—On the Opening of Folio Accounts, and on Post Office Orders.

Folio accounts are thus called because until lately a fee had to be paid for each page occupied by the account. Folio accounts

* In practice this rule does not often operate, as all, or nearly all, drawers of bills have, if not an office, at least an agent in Stockholm.

are, in practice, only opened in large sums, such as the cash reserve of other banks.

1. Money is received without charge by the State Bank and its branches when offered by the State and by any public offices, banking companies, and others who desire it; an account is opened, and its contents must be communicated to its owner whenever he requires it. No interest is paid on money thus received. (Interest is paid on current accounts, as explained later.)

2. The request to open a folio account must be made in writing.

3. Withdrawals can be made by written or printed orders, or assignments or cheques payable to a certain person or to his order and not transferable in blank (*i.e.*, they must be endorsed to some one's name). Cheque books are supplied gratis to owners of accounts as there is no stamp tax at present on cheques.

4. The directors are empowered at the request of the State to allow certain public authorities to draw against the amount of the State in the head office, and get paid at branch offices.

5. Bank post orders are peculiar to Sweden and are payable at sight. In order to avoid the necessity of sending money through the post, any one can pay it in to the head office or branches and receive a bank order payable on demand to a person named or to his order, but these orders may not be transferable in blank, *i.e.*, the name of the transferee must always be on the endorsement. Bank post orders.

All banks in Sweden issue these bank post orders, and they are very largely availed of by the public, there being no stamp or tax on them. Cheques on the other hand are not used, as in the United Kingdom, between individuals, they seldom seem to succeed anywhere abroad, though no one can tell the reason.

The head office and branches receiving the money for these postal orders are forbidden to use it in discount, loan, or credit business, and should more money be thus received at a branch than it is supposed will be wanted for meeting postal orders drawn upon it, the directors may call the money in from the branch to the head office. If, on the other hand, more money than it holds be required by a branch for paying these postal orders, the branch may give a draft on the head office. If, again, it should chance that the head office had not sufficient funds of the category of postal order funds at a particular moment to pay the drafts of the branches, then the directors may take and use an advance from other funds, but must repay the advance as soon as the receipts allow it.

6. At any office of the State Bank money may be paid in, and by a telegram from the receiving office any other office may pay out the same amount to the person indicated by the sender, the directors being empowered to make such conditions and to fix Telegraph orders.

such charges as may be proper to secure the bank from all loss.

Customers' securities and boxes.

D.—On the Keeping of Securities, Foreign Gold Coin, and Sealed Packets.

1. In the head office, debentures, shares, and other securities of such kinds as may be allowed by the directors are received for safe keeping, and the bank must give a certificate of receipt to the depositor. Such certificate shall contain the name of the depositor, a number, date of issue, and amount of deposit, as also series, number, or other particulars of each sort of security, and the value set upon them, and also a promise by the bank on return of the certificate and payment of fees to give back the papers taken charge of, or give others of the same sort, tenor, and amount, or pay the value, as set down, of any paper or papers not forthcoming. The value set down should, so far as possible, have been the market value of the securities.

2. The same process, *mutatis mutandis*, takes place when foreign gold coin is deposited.

3. The head office may, so far as it can spare room, also take charge of packets or other property under seal. The depositor need not mention the contents (nor is it customary to do so), but the certificate shall contain a description of the outside appearance and the measurement of the box or packet deposited, and the name of the depositor. The packet is returned on presentation of the certificate and payment of the fee. The State Bank is not, however, responsible for involuntary injuries or accidental misfortunes to the packet.

Fees payable to bank on depositing securities, &c.

4. The fee for depositing securities or foreign coin is at the rate of one-tenth of 1 per cent. annually on the value named. The least fee is the proportion due for three months, and the amount of the fee must not be under 11s. However, where comparatively few securities are deposited, but these represent large sums, the directors may allow a reduction in the fees.

Fees payable for customers' boxes deposited.

5. The fees for sealed deposits are reckoned according to size, the least being 6*d.* a month. Not less than three months can be reckoned.

6. If there be differences of opinion as to the value or size of any deposit, the bank must refuse to accept it. Whatever is the minimum fee must be paid in advance, and part of a month is reckoned as a whole month.

E.—On Loans and Borrowings and Term Deposits with Interest.

Current accounts.

1. In the head office and branches, after due consideration by the managers concerned, money is accepted on current account, not, however, from companies doing a banking business, nor from

the State, nor any administrative branch of the Government excepting the Post Office Savings Bank.*

On money being paid in to the current account a receipt is given, which must not be transferred to anyone else.

[Note that it is only this sort of receipt which is not a negotiable instrument; receipts for securities in the bank's custody are negotiable if the transfer be approved by the bank.]

A cheque-book is supplied gratis, and must be invariably used. No cheques can be given in blank, that is to say, "to bearer."

Cheques are payable at sight if there be sufficient funds to the credit of the drawer.

Interest, when interest has been promised, begins the day after the day of deposit.

2. The directors determine whether interest, and how much, is to be paid on current accounts. The branches may give different interest from the head office and from each other. 22,000%. is the most that interest can ever be paid on in one account, but the present limit is 1,400%. Interest on current accounts.

3. Both at the head office and the branches money from 5l. 10s. upwards may be deposited at interest (the rate of which is fixed by the directors) for a fixed term, or for an indefinite term with a pre-arranged time for which notice of withdrawal shall be given. A certificate of deposit is issued and must be returned upon withdrawal. Interest on deposits for a fixed term.

Lending Business.

The head office has its district for lending money, and certain branches have their districts in which to lend money. Lending business.

The lending business includes:—

- (a) Discounting of bills.
- (b) Lending on mortgage of promissory notes, shares, State or local loans, and other securities.
- (c) Lending on pledge of goods weighed.
- (d) Granting of a credit (*i.e.*, the bank) against security deposited gives its customer credit up to a fixed amount, a small fee corresponding to the whole amount being paid, besides interest on what is actually used.
- (e) Granting of loans with sinking funds. (Under this last heading not more than 666,000l. may be lent by the directors at any one time.)

(a) Discounting of bills is only allowed when the bills are expressed in Swedish money, and repayable within six months, and also drawn, in legal form, upon a Swedish subject domiciled in the kingdom, and properly accepted. Should the acceptor not be domiciled at the place where the bill is discounted, nor in Stockholm, nor in a place where there is a branch of the State

* Government money is put down in the folio account, explained already, no interest accruing as it does with current accounts.

Bank or some other bank, then the bill shall contain the name of some person in a place where there is a bank who will hold the money ready on the day it is due. (There are no legal days of grace in Sweden, but in practice there are two days.)

(b) Lending on mortgage of promissory notes, shares, &c. These loans are issued against the borrower's promise to pay together with the security of a promissory note or a draft accepted by another person, and covering at least the whole amount of the loan, or else with the security of shares, State or local loan certificates or other mortgage accepted by the management as a full security for the loan, and these loans must be granted for a fixed term not exceeding 6 months, or also repayable on notice not exceeding 3 months.

(c) Lending on pledge of goods weighed and left at the weigh-house, or otherwise under the control of the bank, that is to say, the loan is made on the borrower's bond, and his pledging of pig-iron, hammered, or rolled iron, manufactured iron, steel, copper, brass, alum, and lead of Swedish make; the amount of the loan must not exceed three-quarters of the selling price of the articles pledged, and the bank or its branch can, as often as may seem proper, look over and count up the articles pledged.

(d) Grant of a credit. Credit may be granted to—

1. The National Debt Office.
2. The "Iron Office" (in Sweden there is a Government Department for the all-important iron industry).
3. The Post Office Savings Bank and other savings banks working under Government regulations.
4. Companies, including banks. (However, there are a number of limitations to the grant of credit to companies.)
5. Communes.
6. Private persons.

Credit is given each time for a period not exceeding 1 year against security to be fixed by the manager of the bank or branch; but the National Debt Office, Post Office Savings Bank, and Iron Office, are not required to give security.

The manager of the bank or branch decides, for each case separately, how large a credit may be permitted; but a rule exists that the National Debt Office may get a credit at the head office of the bank up to but not exceeding 83,000*l*.

Interest is reckoned on the amount outstanding, any figure under 10*s*. being counted as 10*s*.

Interest is paid on the sum actually owed, so that people put in and draw out according to their convenience, always keeping within the total figure allowed. This is very convenient as compared with borrowing a fixed sum of money, part of which might not be required, or only required for a shorter time than the term of the loan.

The money must be drawn by the person to whom the credit is granted on the bank's cheque forms, which are different from the forms for current account cheques, and made payable to a person

named, not to bearer. This system of cash credits is well known in Scotland, but it is not practised elsewhere than in Scotland and in this country.

(e) Sinking fund loans are issued against the borrower's promise to pay, together with a pledge of either promissory notes or other securities which will ensure the safety both of the capital and interest, or else with a guarantee by a responsible party as if it were his own debt. In practice at least two guarantors are required.

The sinking fund loans are repaid by instalments of one-fifth of the whole amount every 6 months, together with interest, there is also a proviso that the whole becomes due on a default occurring. The loan must not be for less than 16%. If it shall have been granted on another person's guarantee, the debtor may be called upon at each pay day to exhibit a certificate of his own and his surety's continued solvency, or give fresh security acceptable to the bank, or in default thereof the whole of the unpaid amount may be regarded as fallen due.

General Rules for the Loan Business.

No discount, loans, or credit may be granted—

General rules
for loans.

1. To Swedes domiciled abroad.
2. To directors of the State Bank.
3. To employés of the State Bank. However, both directors and employés may obtain loans or credit on the security of Government paper and goods weighed.

No discount, loans, or credits may be granted to persons not registered in the district where the loan is to be granted (all Swedes, male or female, are registered in some parish or other). However, this limitation does not apply as regards credits or loans without sinking funds, so long as the security given consists of real property, weighed goods, shares, or bonds. An issuer, acceptor, indorser, or surety of a bill, bond, or draft is admissible, even though he does not belong to the bank district, when a discount, loan, or credit is granted. As a borrower no one may make himself liable for a larger sinking fund loan than 333%.

A guarantee for a loan or credit shall, if the borrower or his surety's solvency be not known to the management of the bank, or if the pledge offered be not considered in itself to give perfect safety, be provided with a certificate as regards solvency, signed by some public authority, civil servant, or private person in whom the management has full confidence. Independently of the above, however, it is the duty of the management, by diligent inquiries, and by using the utmost exertion, to ensure the absolute safety of all advances made. If the signatures of any of the parties to a loan be not known to the management, then two trustworthy witnesses must certify to the signatures.

The directors of the State Bank and the members of the management of the branches, as also the employés of the head
(1455)

office and the branches, are strictly forbidden to act as agents in any way whatever for the discounting of bills or procuring of loans or credits in the bank or its branches.

Interest payable on loans and credits, and interest reckoned when bills are purchased, is to be fixed by the directors according to the circumstances of the time and the nature of the securities offered, and need not be the same in the head offices as in the branches, nor need it be the same in different branches.

When loans or credits are not repaid on the day they become due at the latest, interest is counted from that day forward at the rate of 6 per cent. per annum, unless, indeed, there were a still higher rate of interest agreed upon in the contract.

The head office and the branches have a right to receive, without the interposition of any delay, all legal assistance from the governors of provinces and other executive officers in actions taken by the bank for the recovery of debts due to it.

*Instructions issued yearly to the Parliamentary Commissioners
of Audit.*

Instructions
to auditors.

At their first meeting after appointment they are to receive from the directors a report on the position of the bank and on all its proceedings, including those connected with the paper manufactory of Tumba. The Commissioners are also to receive from the managers of the branches a report on the management of those branches and on the rise and fall of discount.

The Commissioners must go closely into everything, calling attention to all faults committed, and advising the directors when the latter wish for advice. They must listen to all personal complaints of employes, but they must hold secret all they learn about private person's relations with the bank, and all the bank's own private affairs.

The Commissioners must, however, draw up a report for publication, which report is widely distributed.

The minuteness with which the Commissioners must go into details of the business, not only of the head office, but of every branch, is quite remarkable. They must examine all the proceedings of the manager, verify the money in hand and receipts for loans, taking care that the latter have been either entirely repaid or partially repaid if renewed, also that proper interest has been duly charged and actually received on all advances and overdrafts, that all the right legal steps, prosecutions, or actions for recovery of debts have been taken at the right moment and carried on industriously and discreetly for the use of the bank.

It should be pointed out here that the auditors of the branches are not the same gentlemen who audit the head office, the latter auditors make a fresh revision of the very full reports of the auditors of the branch banks.

The Commissioners of Audit can proceed against any director if the latter has committed any fault, the proceedings being carried on before the High Court of First Appeal by the

Parliamentary Attorney-General, who is a separate functionary in Sweden from the Government Attorney-General.

Whilst, in the course of this report, numerous features deserving commendation in the working of the Swedish State Bank have been alluded to, it is necessary to point out a grave blemish in its theory and practice which makes it perfectly useless to a large part of the population. Shortcomings
of the State
Bank.

Incredible as the fact may appear, the State Bank not only insists on giving a receipt when securities are deposited in its charge, but refuses to release or give up such securities (whether "registered" or "to bearer") without the production of that actual document, namely the original receipt.

The said document is moreover an instrument, the loss of which is almost equivalent to the loss of an English bank note or of a share "to bearer" in an English company, that is to say, that by going through a number of formalities lasting 12 months at least, and by depositing a pledge for its full value, it may eventually, rather as an act of grace, be replaced by the bank, which keeps a duplicate of it.

Even the blank form of such a receipt is regarded in such a light as to prevent a specimen being obtained for the purposes of this report. It would seem, therefore, to be in some respects a positive disadvantage to deposit a parcel of securities in the Swedish State Bank, inasmuch as the receipt would be more easily lost or burnt up than the more bulky papers which it represents.

No doubt these receipts require their owner's endorsement for transference, but they might easily come into the hands of honest purchasers for value, not responsible for the forgery of the name of the original owner, and of the Bank transfer clerk.

Thus, although anyone depositing securities in the Swedish State Bank has the advantage of having his dividends collected for him, drawn bonds exchanged, and so on, he does not, nevertheless, enjoy the chief advantage of depositing securities at the Bank, in the United Kingdom, France, and elsewhere, namely, that of securing himself against accidental loss.

A measure of security appears to be enjoyed by the owner of bonds not "to bearer," but payable to himself, and this is really no doubt the case as far as a forged transfer of the receipt is concerned, but if he loses the receipt or if it be burnt up he can no more get back his bonds than if they were bonds to bearer, though he will continue sure of the interest paid.

Moreover, in Sweden, all shares and bonds or debentures are "to bearer," though, to be quite accurate, it may be added that a very small minority of investors do cause their names to be written across their shares or bonds "to bearer," which makes them somewhat like "registered" securities, although even then not requiring any witness to signature on transfer.

The foregoing applies generally to the contents of boxes or packets belonging to the customers of the bank and placed in the

bank's charge for safe custody. The owners are forced to take a receipt, and can by no means get their box or packet back or have access to it without returning the original receipt.

In practice the Swedish public do not complain of the present system as above described, nor do they often lose the receipts. The bank is very ready to accept deposits from anyone, but it does make some attempt to identify persons taking out deposited securities, whether it be the person first mentioned on the receipt or the person to whom it is finally endorsed.

This is shown by the fact that when people have incautiously deposited their wills in their box at the bank their heirs cannot obtain access to such wills without the greatest difficulty, even though holding the original receipt, owing to the latter being in the name of the deceased.

Notwithstanding all the above, yet on June 30, 1892, there were lying in the Riks Bank, to the account of 388 separate customers, securities worth 2,139,609*l*.

At the same day there also were lying in the bank 265 boxes or sealed packets belonging to that number of customers.

The other banks in Stockholm follow the practice of the State Bank, so that there is no plan whatever in practical operation by which a man can disburthen himself of the responsibility of keeping in his pocket or in his desk either all his certificates of shares and bonds or else a receipt representing them.

It has, indeed, been suggested, in the course of inquiries made for the purpose of this report, that in depositing securities the owner might leave his receipt in the bank with the securities, and this procedure would not, in the opinion of the best legal authority, be unlawful, but it has never yet been tried, so that it is impossible to say what the consequences would be.

Gold Coinage.

Gold coinage.

By a mutual agreement in force, the mints of Sweden, Norway, and Denmark must accept gold bars and certain foreign gold coins for coining into 20 kronor and 10 kronor pieces (say, sovereigns and half-sovereigns, though 20 kronor is worth 10 per cent. more than a sovereign), if not less than 28,000*l*. worth be offered at a time each of the three kingdoms may, however, accept a less sum at a time, if its mint likes to do so.

The charge to the owner of the gold is a $\frac{1}{4}$ per cent. for 20 kronor pieces, and $\frac{1}{3}$ per cent. for 10 kronor pieces.

Gold is the standard in Sweden as in Norway and Denmark, and a gold coin is nine-tenths fine gold and one-tenth copper, so that 248 20-kronor pieces contain 1 kilo. of gold.

Only 20 kronor and 10 kronor pieces are coined for the public, 5 kronor pieces being only coined for the State or for the State Bank, which latter is charged $\frac{1}{2}$ per cent. for coining such 5 kronor pieces as it requires.

Some gold is found in Sweden itself; for instance, 2,198*l.* worth was bought by the State Bank from the Kopparberg Mine in the first half of 1892.

Silver Coinage.

The actual value of the silver in the Swedish, Norwegian, and Danish silver coins is now (1892) only 60 per cent. of the nominal value of the coins. The silver coinage in circulation in the three countries is estimated at nominally worth 3,400,000*l.* A krona contains eight-tenths silver and two-tenths copper. Were the silver in the coin increased from eight-tenths to nine-tenths of its substance that would only increase the value of the coin by 7 per cent., though it would be a great improvement to the coin otherwise.

A krona contains 6 grams of fine silver, and that amount was worth, in 1873, when the present system was introduced, over 94 per cent. of the gold value of the silver krona, though now the gold value has sunk to 60 per cent., counting silver as worth 30*d.* per ounce.

This state of things may be compared with the state of things in America, where the gold value of silver in a silver dollar is likewise 60 per cent. of its nominal value, whereas in the Latin league countries it is 58 per cent., in the United Kingdom 57 per cent., in Germany 56 per cent., and in Austria-Hungary under the system now to be adopted it is only 55 per cent.

Any amount of silver coins, in quantities divisible by 10, may be exchanged for gold at the State Bank and some of its branches, but private persons cannot have silver coined for them in Sweden, Norway, or Denmark.

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SWEDEN AND NORWAY.

CHRISTIANIA.

Consul-General Michell to the Earl of Rosebery.

My Lord,

Christiania, April 10, 1893.

I HAVE the honour to transmit herewith a Memorandum amplifying and bringing up to date the Report on the Telephone System which I made in 1890.

The necessary materials were obligingly supplied to me on the 5th instant by the Managing Director of the Christiania Telephone Company.

I have, &c.

(Signed) T. MICHELL.

*Memorandum in Amplification and Amendment of the Report made
on the Telephone System at Christiania on April 16, 1890.*

The capital of the Christiania Telephone Company is now in British currency about 83,333*l.*, raised on 7,500 shares at about 11*l.* 2*s.* 3*d.* per share. The dividend hitherto declared has been at the rate of 5 per cent.

In Appendix I. is given the balance sheet of the company for 1892.

Since 1890 the number of subscribers has grown as follows :—

Year.			Number of Subscribers.	Increase.
				Per cent.
January 1, 1891..	..	..	2,520	81
" 1892..	..	..	2,896	108
" 1893..	..	..	3,287	136

Their number was:—

Year.					Number of Apparatus.
At the end of	1890	..	..	..	2,817
"	1891	..	..	..	3,280
"	1892	..	..	..	3,768

Of these 65 belonged to subscribers in each year.

Blake's transmitters are now being gradually replaced by transmitters on the coal-powder system.

About 30 per cent. of the transmitters of the Christiania Telephone Company are now on that system.

The cost of a complete telephone apparatus is now from 2*l.* 15*s.* 6*d.* to 3*l.* 6*s.* 6*d.*

Except at Christiania and Bergen, the private companies use for the exchanges Swedish iron or steel wire 2 mm. in diameter. At Christiania aerial cells, containing 27, 52, or 102 wires, are used in the vicinity of the Central Station.

Within the boundaries of Christiania bronze wire only 1.25 mm. in diameter is in use. Bimetallic wire (steel in copper), 1.9 mm. in diameter, is also used.

The inter-urban double lines of the Christiania Telephone Company are mostly erected on poles on the parallel system, periodically crossed on a pole.

Of late the prices have been:—

				Length.		Price.		
				Feet.		£	s.	d.
For fir	..	..	..	25	About, per dozen..	1	6	8
"	..	..	..	50	" " "	7	15	6
"	..	..	..	60	" " "	10	0	0

The cost of an ordinary private company's porcelain insulator is 16 öre ($2\frac{2}{15}$ d.).

Within the city the remuneration to persons who keep such offices has been raised from 30 per cent. to 50 per cent. of the revenue derived from them.

The charges for conversations are now from 5 öre ($\frac{1}{3}$ d.) to 50 öre ($6\frac{2}{3}$ d.) for 5 minutes.

The mutual societies of which the subscribers own the lines, the apparatus, and the Central Station, now charge from 16*s.* 8*d.* to 3*l.* 6*s.* 8*d.* per annum.

The charges of the Christiania Telephone Company have not been altered. The first circle embraces a diameter of 3 kiloms.

The Dröbak Exchange (20 subscribers) is the only one on the double-line system.

MAP OF TELEPHONES CONNECTED WITH CHRISTIANIA



A considerable number of companies have now erected on their lines public telephone stations, to which telegrams can be sent from any telegraph office in the country.

The general rate of 50 öre ($6\frac{2}{3}d.$) for transmission, regardless of the number of words, has been reduced to 15 öre ($2d.$).

At the end of 1891 the total number of telephone companies in Norway (all private) was 54, against 30 in 1889.

A Government Committee is at present considering questions concerning the telephone service in Norway.

Appendix I.—BALANCE Sheet of the Christiania Telephone Company for the Year 1892.

RECEIPTS.

Description.	Amount.
	£
Subscriptions	14,009
Receipts from public stations	268
" for messenger service	19
" transmission of telegrams	129
" from lines to Hønefos, Moss, Gjøvik, Drøbak, Drammen	1,010
Interest	65
Profit on sale of shares	591
Total receipts	16,091

EXPENDITURE.

Description.	Amount.	
	£	£
1. Administration—		
Salaries, wages	920	
Office expenses and advertisements ..	271	
Wages and uniforms of messengers ..	241	
		1,432
2. Working expenses at central stations—		
Salaries, messenger service, &c. ..	3,048	
Printingsubscribers' lists, supplements, &c. ..	218	
Contribution to female telephone clerks' benefit fund	119	
		3,385
3. Maintenance—		
Salaries of engineers	434	
Inspection of lines and correction of mistakes	962	
Maintenance of lines	3,419	
Repairs to roofs and damages	431	
Tools and implements	89	
Contribution to workmen's savings and benefit funds	85	
		5,420
4. Sundry expenses—		
Rent of central station, workshops, and warehouses	333	
Rent of other workshops and warehouses; fuel, lighting, &c.	327	
Dues to State	285	
Sundries in connection with extra-urban lines	120	
Insurance and taxes	38	
Contingent loss of subscriptions	56	
Sundry expenses	114	
Directors' fees	278	
Provision for municipal tax for 1892 in dispute	309	
		1,860
5. Written off—		
On stock 10 per cent. of value	53	
Capital account of house	278	
On lines, &c., 5 per cent.	1,131	
		1,462
6. Dividend to shareholders, 5 per cent. ..	..	2,532
Total expenditure	..	16,091

CHRISTIANIA.

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CAPITAL Account of the Christiania Telephone Company for the
Year 1892.

ASSETS.

Description.	Amount.
	£
Works account	47,375
Extra-urban lines	2,501
Premises, capital account	7,500
Materials and apparatus, stock of	1,667
Cash account	78
Sundry debtors and balances	1,245
Total	60,361

LIABILITIES.

Description.	Amount.
	£
Shareholders' account (share capital) ..	51,300
Dividend for 1892 (including 147% unclaimed for previous years)	2,679
Christiania Bank and Kretitkasse	1,317
Mortgages on premises	2,222
Female clerks' benefit fund	316
Workmen's savings and benefit fund	298
Sundry creditors, less debtors	1,181
Subscriptions received in advance for 1893 ..	1,048
Total	60,361

Appendix II.—TABLE showing the Number of Subscribers to each Telephone Company in Norway.

Description.	Subscribers on January 1.			Inhabitants on January 1.		
	1889.	1891.	1892.	1889.	1891.	1892.
Christiania Telephone Company—						
Christiania				...	151,200	...
Drøbak	2,237	2,520	2,896	2,000	2,200	...
Hønefoss				1,400	1,500	...
Vestfoldenes Telephone Company—						
Gjøvik and several places ...	...	83	89	...	1,400*	...
Drammen - Oplands Telephone Company—						
Hønefoss, Kongsberg, and several places	...	41	85	...	1,500 + 5,200*	...
Drammen Telephone Company	145	198	231	20,000	20,700	...
Eidsvold Telephone Association	27	24	25	...	...	...
Hamar, Hedemarken	...	251	292	...	4,200*	...
Storelvdalen	...	26	44	...	...	...
Elverum	57	98	102	...	...	...
Kongsvinger, Solør	57	75	82	...	1,300*	...
Næs, Romerike	42	62	63	...	...	...
Fredrikshald	97	117	154	11,000	11,200	...
Sarpsborg	37	57	68	2,800	2,900	...
Fredrikstad	142	175	206	12,000	12,500	...
Moss	70	100	117	7,000	8,100	...
Horten	70	78	87	6,000	6,800	...
Tonsberg	62	87	102	7,000	7,200	...
Laurvik	90	94	91	11,000	11,300	...
Porsgrund	...	...	...	4,500	4,000	...
Langesund	37	56	60	...	1,200	...
Skien	94	137	158	7,000	9,000	...
Skien-Telemarken Telephone Company... ..	...	32	33	...	...	...
Kragerø	28	34	38	5,000	5,800	...
Arendal	50	68	90	4,000	4,600	...
Christiansand	50	81	96	13,000	12,800	...
Stavanger	148	183	210	24,000	23,800	...
Haugesund... ..	...	63	75	...	5,700	...
Bergen	750	959	1,103	50,000	53,700	...
Vestfjeldske Telephone Company—						
Vossevangen and other places	...	13	14	...	...	...
Christiansund	51	56	68	10,000	10,400	...
Aalesund	37	39	45	7,000	8,400	...
Trondhjem	315	416	490	25,000	29,200	...
Namsos	...	17	37	...	1,800	...
Levanger	...	54	57	...	900	...
Bodø	...	31	34	...	3,700	...
Sannemsøen	...	6	6	...	...	...
Stokmarknes	7	11	13	...	...	...
Sortland	...	12	37	...	...	...
Bo	...	14	14	...	...	...
Tromsø	63	46	44	6,000	6,000	...
Aamot	...	...	34	...	...	...
Lillehammer-Gausdal	...	...	66	...	1,800*	...
Trysil	...	...	29	...	...	...
Follo Telephone Company	...	...	25	...	...	...
Holmestrand	...	...	55	...	2,400	...
Sandefjord	...	...	46	...	4,200	...
Grimstad	...	...	54	...	3,200	...
Stenkjær	...	...	80	...	1,900	...
Harstad and Sandtorv	...	...	26	...	...	...
Tjøstø	...	...	2	...	...	...
Hammerfest	21	...	...	1,500	...	...

* Rural districts.

CHRISTIANIA.

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Appendix III.—ROYALTIES Paid by the Trunk Lines between Towns in Norway.

Trunk Lines between Towns.	Distance (in kiloms.) about—	Annual Royalty to the State.	
		Currency.	Sterling.
		Kroner.	£ s. d.
Hamar-Lillehammer	40	230	12 15 0
Fredrikstad-Sarpsborg	16	100	5 11 0
Christiania-Gjøvik	110	400	22 4 0
Christiania-Drøbak	33	} 3,000	166 13 0
Christiania-Moss	60		
Christiania-Hønefos	60	..	..
Christiania-Horten	90	} 1,000	15 11 0
Horten-Holmestrand	20		
Christiania-Drammen	40	} 5,500	305 11 0
Drammen-Hønefos	70		
Drammen-Kongsberg	40	..	..
Tönsberg-Sandefjord	25	220	12 4 0
Tönsberg-Tjömö	20	180	10 0 0
Laurvig-Sandefjord	20	} 600	83 7 0
Laurvig-Porsgrund	26		
Laurvig-Kongsberg	90	} 500	27 16 0
Porsgrund-Skien	10		
Porsgrund-Langesund	22	200	11 2 0
Tvedestrand-Boröen	10	100	5 11 0
Tvedestrand-Lingö	18	45	2 10 0
Arendal-Boröen	22	145	8 1 0
Levanger-Stenkjær	42	100	5 11 0

STOCKHOLM.

Consul Constable to the Earl of Rosebery.

My Lord,

Stockholm, March 16, 1893.

I HAVE the honour to enclose six tables, showing the growth and recent rapid extension of the Telephone System in this country. It will be seen from an examination of these tables that in the year 1891 a sudden movement of development took place. This was caused by the circumstance that the Swedish Government, which had long been hesitating on the brink, at length decided to undertake itself the task of extending telephonic communication between the principal towns of the kingdom. If it had held back any longer the Stockholm Allmänna Company would have set about the undertaking, to the detriment of the State telegraphs. It was judged better, therefore, by the Government in office to partially amalgamate the State Departments of Telegraphs and Telephones, and to undertake itself the inter-urban extension of the latter, which had become inevitable. When it is considered how very great the distances in Sweden are, and how inconsiderable is the size of the majority of her towns, the reasons for the long hesitation of the public authorities become sufficiently clear. As long as it was possible to maintain the monopoly of the already established system of telegraphs, it was obviously to the advantage of the Swedish Government, from a business point of view, to do so.

As a result of this recent activity, and of the negotiations leading up to it, a keen competition between the State Telephone Department and the Stockholm Allmänna Company has ensued. Beyond the limits of Stockholm the Government Department has altogether the advantage, and is rapidly acquiring property in such outlying lines of the Allmänna as are already in existence. Within Stockholm itself the issue is not so clear, for the Allmänna is a rich and powerful company established since 1883, which musters at the present moment some 7,000 subscribers, whereas the State Department has only some 1,600 subscribers. The advantages of priority and possession are therefore with the Allmänna. But it seems not unlikely, nevertheless, that in the long run it may be unable to compete with the Government, and that the State Department will under-bid the old company and gradually take over its subscribers.

At the present moment the Allmänna Company is being compelled to double the number of its lines in Stockholm, that is

to say, it finds itself obliged to adopt the metallic circuit system instead of that of single or grounded lines. The company petitioned the Government to be allowed to place its subscribers in connection with the new inter-urban lines, and this was only granted on condition that the system should be changed as above mentioned. Of course, this involves a large outlay, and is not favourable, at any rate, to the immediate prospects of the Allmänna.

With a view of obtaining information at first hand as to the intentions of the Swedish Government with regard to the extension of the telephone system in the immediate future, I had recourse to Mr. Hultman, Chief Inspector of the State Telephones in Stockholm, who has been most obliging in the matter of placing his time at my disposal.

He informed me that the great work of extending a network of telephones between all the towns of any importance in the kingdom would, it was confidently anticipated, be completed within the next 4 or 5 years. By that time it would be possible to converse between Uparanda, at the extreme north, and Malmö, at the southern point of the peninsula. It is not expected that the great distance (993 miles) will cause the sound of the voice to be indistinct, except perhaps in very rough weather. Over aerial lines, in fine weather, he stated that the loss of distinctness from distance is not great. With cables, either submarine or subterranean, the case is different.

Mr. Hultman's experience is not confined to Stockholm. He has visited the United States and made himself acquainted with the details of the American Telephone Systems. This circumstance gives considerable point and interest to some of the information with which he was kind enough to supply me with regard to the formidable works of construction upon which the Swedish Government is at present engaged.

For instance, he stated that one of the greatest difficulties that has hitherto impeded the laying down of municipal telephones, namely, the question of overhead wires, has, in his opinion, been more successfully dealt with by the State Department in Stockholm than has previously been found possible. There are many objections, which it is needless to specify, to the extensive employment of overhead wires and cables. To their alternative, underground cables, the single objection of expense has hitherto often been found insuperable. In Stockholm, nevertheless, the Government has laid down underground cables, which have cost no more than overhead cables, that is to say, 10 öre ($1\frac{1}{3}d.$) per metre per subscriber, which, again, is only about double the price of single aerial lines. Mr. Hultman informed me that the underground cable systems which he inspected in America had cost at least four or five times as much. As to the cause of this great saving in expense, Mr. Hultman's explanations were somewhat technical, but if I understood him rightly, the main point is that it had been found possible to dispense with the iron tubing, which had hitherto been considered necessary for encasing the cables.

I enquired of Mr. Hultman whether he could tell me, apart from the question of economy, wherein the acknowledged superiority of the Stockholm Telephone System (Allmänna as well as Government) consisted. He replied that it mainly consisted in the excellence of the instruments and materials employed, and the high standard of workmanship exacted in every branch of construction. In the long run, he says, there is gain every way from this. I may here note that it is characteristic of the Swedes to take broad views in such matters, and to rely on the future to compensate them for the initial sacrifice. In this connection Mr. Hultman was very emphatic about the mistake that had often been made in other countries, and to a certain extent also in Sweden, in laying down, for the sake of cheapness, single grounded lines instead of double metallic circuit lines.

Another point of superiority, in Mr. Hultman's opinion, is the great care that is taken in Stockholm with regard to the efficiency of the staff of employes. For instance, he informed me that an inspector every day goes round among the subscribers' instruments. He is provided with a stop-watch, and when he makes a call he notes the number of seconds that elapse before he receives an answer from the exchange station. Thus each employé at the exchange finds himself (or herself) confronted every morning with a slip of paper on which is written his record of the day before.

I have, &c.
(Signed) M. S. CONSTABLE.

Table 1.—STATE TELEPHONES.

TABLE showing Increase of Lines, Stations, and Apparatuses during the Years 1882-91.

Year.	Trunk Lines. (Double or Metallic Circuit.)	Trunk Lines. (Single or Grounded Lines.)	Total Length of the Lines.	Number of Stations.	Number of Apparatuses.
	Kilometres.	Kilometres.	Kilometres.		
1882	...	291·6	291·6	14	163
1883	...	909·1	909·1	22	597
1884	...	1,362·9	1,362·9	32	888
1885	...	2,172·5	2,172·5	46	1,255
1886	...	3,115·69	3,115·69	62	1,602
1887	...	4,323·98	4,323·98	75	1,965
1888	...	7,219·7	7,219·7	94	3,389
1889	1,550·6	7,291·0	8,841·6	105	3,925
1890	4,655·7	8,123·7	12,779·4	126	4,947
1891	10,542·0	11,921·7	22,463·7	235	10,249

Table 2.—PRIVATE COMPANIES.

TABLE showing Extent and Increase of Private Companies' Lines, Stations, and Apparatuses, during the Period of 1883-91.

Year.	Length of the Lines.	Number of Stations.	Number of Apparatuses.
	Kiloms.		
1883	5,977·2	..	..
1884	9,123·5	..	8,210
1885	15,000·0	..	11,000
1886	20,853·0	183	12 210
1887	27,471·4	248	13,722
1888	30,676·9	302	14,234
1889	37,248·1	404	16,056
1890	39,761·0	432	15,472
1891	37,839·0	392	14,738

Table 3.—STATE TELEPHONES.

TABLE showing the Total Expenditure of the State Telephone Department in the Construction of new lines, and the Purchase of Private Lines already existing, for the Years 1881-91.

Year.	Amount.	
	Currency.	Sterling.
	Kroner öre.	£ s. d.
1881	7,569 19	420 10 3
1882	44,070 92	2,448 7 8
1883	153,831 93	8,546 4 4
1884	76,443 78	4,246 17 6
1885	73,399 49	4,077 14 11
1886	96,258 49	5,347 13 10
1887	84,197 36	4,677 12 7
1888	433,951 24	24,108 8 0
1889	416,812 74	23,156 5 3
1890	914,067 78	50,781 10 10
1891	1,403,110 39	77,950 11 10
Total	3,703,713 31	205,761 17 0

Table 4.—STATE TELEPHONES.

TABLE showing Length and Cost of Construction of Long Distance Lines commenced in 1891.

Lines.	Length of the Lines.	Cost of Construction.	
		Currency.	Sterling.
	Kiloms.	Kroner öre.	£ s. d.
Gothenburg-Malmö, com- menced, the completed part	105·5	18,422 42	1,023 9 4
Gothenburg-Jönköping, not completed	..	..	..
Uddevalla-Strömstad	125·0	25,035 56	1,390 17 3
Stockholm-Upsala (2 lines) ..	134·8	27,695 24	1,538 12 6
Pitea-Haparanda, not com- pleted	224·0	26,226 35	1,457 0 3
Norrtegelge-Söderarm, not com- pleted	..	..	..
Sterbnäs-Näskubben, not com- pleted	..	..	..
Also the double line Nässjö- Jönköping, was laid down ..	85·4	14,828 77	823 16 7
Total	674·7	112,208 30	6,233 15 11

NOTE.—Mr. Hultman informs me that all these lines have since been completed.

Table 5.—STATE TELEPHONES.

TABLE showing the Number of Telephone Calls and of Telegrams and Messages sent during the Period of 1884–91.

Year.	Telephone Calls.	Telegrams and Messages Forwarded by Telephone.
	Number.	Number.
1884	..	25,329
1885	..	34,681
1886	2,279,206	39,746
1887	2,980,824	48,052
1888	5,172,432	68,197
1889	6,784,781	97,066
1890	8,285,593	105,195
1891	18,550,087	140,790

Table 6.—ALLMÄNNA TELEPHONE COMPANY.

THE following Table shows the Number of Subscribers belonging to the Company, and of Messages sent between Stations in Stockholm during the different Months of the Year 1891.

Month.	Number of Subscribers on the 15th of Month having Single Lines.	Number of Subscribers having Double Metallic Circuit Lines.	Total Number of Subscribers on the 15th of Month.	Total Number of Messages during the Month.	The Average Number of Messages per Working Day.	Number of Communications per Subscriber.	Number of Employés.
1891—							
January ..	5,808	117	5,925	1,043,226	39,308	6.33	124
February ..	5,840	137	5,977	970,279	38,347	6.42	128
March ..	5,881	150	6,031	1,026,362	40,355	6.69	133
April ..	5,884	181	6,065	1,141,758	42,052	6.93	140
May ..	5,917	195	6,112	1,191,153	45,789	7.49	152
June ..	5,963	217	6,180	1,157,356	44,349	7.18	159
July ..	5,995	269	6,164	1,197,328	43,106	6.99	161
August ..	5,950	306	6,256	1,119,841	41,408	6.62	160
September ..	5,962	356	6,318	1,203,050	44,542	7.05	155
October ..	5,943	464	6,407	1,267,160	45,132	7.04	153
November ..	6,012	553	6,565	1,229,575	46,664	7.11	152
December ..	6,054	580	6,634	1,328,101	49,602	7.48	157
Total ..	..	..	..	13,880,189	..	..	..
Average per year ..	..	..	..	..	43,390	6.97	..

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IN FORCE IN SWITZERLAND.

*Issued during the Recess and Presented to both Houses of Parliament
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SWITZERLAND.

BERNE.

Mr. Buchanan to the Earl of Rosebery.

My Lord, Berne, November 20, 1892.
 I HAVE the honour to enclose a Report which I have drawn up on the subject of the Different Systems of Graduated Taxation in force in Switzerland.

I have, &c.
 (Signed) | GEORGE W. BUCHANAN.

Report on the Different Systems of Graduated Taxation in force in Switzerland.

ABSTRACT of Contents.

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Extent to
which
progressive
taxation has
been adopted.

The difficulty of obtaining information on matters connected with the internal administration of each of the 25 States of the Confederation renders it impossible to deal with all the cases in which the principle of graduated taxation is applied. In five cantons—Zurich, Vaud, Geneva, Uri, and the Grisons—complete systems of graduated or progressive taxes exist; in several others, as in Glarus, Zug, Solothurn, and Obwalden, fortunes above a certain amount are subjected to somewhat higher rates, while in nearly every canton abatements varying in amount are granted on fortunes and incomes under a fixed standard.

The present report is founded on the laws under which progressive taxes are imposed in the first five of the cantons above mentioned, copies of which have been obtained through Her Majesty's Consuls at Geneva, Zurich, and Lausanne, and it is hoped that it will, although thus limited in its scope, suffice to explain the general principles on which this system of taxation is worked in Switzerland.

Difference
between the
Swiss and the
English
income tax.

In none of these cantons, however, does the income tax correspond to the English tax of that name. In Switzerland it is, as a rule, restricted to income derived from pensions, annuities, usufructs, salaries, wages, and the earnings of labour generally, whereas income derived from capital is taxed on its capital value, either under the general tax on fortunes ("Vermögensteuer"), or, in the few cantons in which a distinction is made between real and personal estate, under the tax on personalty. It is, therefore, rather in the shape of a tax on landed property and on capital that the principle of progressive taxation has been applied to the fortunes of the wealthier members of the community, while the progressive tax on incomes presses rather on the industrial and professional classes.

The progressive taxes imposed in the Canton of Vaud have attracted more attention than those of the other cantons, partly on account of the thoroughness of the system under which they are levied, and partly on account of the fact that they have often been brought very unpleasantly to the notice of foreign residents. It is accordingly proposed to give them the first place in this report, and to describe in detail both the method and the effects of their application, while, in order to avoid repetition, reference will be made only to such salient points of the systems adopted in the other four cantons as will explain the manner in which they differ one from another.

Canton of
Vaud.

A progressive tax on real and personal property and on income has been levied in the Canton of Vaud since the year 1886, when a law was passed defining the categories into which fortunes were to be divided for purposes of taxation, and fixing the proportional rate at which each of these categories was to be taxed.

Tax on real
property.

All real property situated in the canton, with the exception of State property, of certain communal property such as churches, hospitals, &c., and of property specially exempted by law, comes under the operation of this Act, and is divided into three classes—

- I. Properties of a value not exceeding 1,000*l*.
- II. Properties of a value between 1,000*l*. and 4,000*l*.
- III. Properties of a value above 4,000*l*.

In determining the class under which any estate has to be taxed, the amount of the mortgages upon it is deducted from its rateable value.

The actual amount of the tax to be levied is voted every year by the Cantonal Grand Council, but a fixed progressive rate has always to be maintained between each of the three classes. The tax, as at present levied, is at the rate of 1*l*. per 1,000*l*. for the 1st class, 1*l*. 10*s*. per 1,000*l*. for the 2nd class, 2*l*. per 1,000*l*. for the 3rd class.

Personal property is divided into three distinct categories :— Tax on
personal
property.

1. Personalty proper.
2. Income and usufructs.
3. Proceeds of labour.

1. Personalty proper comprises all personal property whereso- Personalty
ever situated, whether consisting of goods, chattels, stocks, bonds, proper. shares, or other securities. Its rateable value is determined by its estimated marketable value, and this in the case of stocks and shares, &c., is fixed at the price at which they are first quoted on exchange at the beginning of each year. Fortunes coming under this category are taxed on their capital value, and not on the income which they yield.

They are subdivided into the following seven classes, the amount of the tax increasing at a fixed rate with each succeeding class :—

Class.	Description.	Amount.	
		From —	To —
		£	£
1	Fortunes under a capital value of ..	..	1,000
2	" between ..	1,000	2,000
3	" " " ..	2,000	4,000
4	" " " ..	4,000	8,000
5	" " " ..	8,000	16,000
6	" " " ..	16,000	32,000
7	" above ..	..	32,000

The tax, as voted by the Cantonal Grand Council, is at present :—

Class.		Amount.
		s. d.
1	Per 100ℓ. ..	2 6
2	" ..	3 9
3	" ..	5 0
4	" ..	6 3
5	" ..	7 6
6	" ..	8 9
7	" ..	10 0

Income and
usufructs.

2. Income and usufructs comprise income, annuities, pensions, &c., which are only drawn for life or for a limited term, or which are derived from personal property or securities held in usufruct.

Unproductive personal property or valuables thus held are valued at a sum representing their market price, and are taxed as if they produced an income of 4 per cent. on that sum.

In the case of persons who are lodged and boarded by others, the value which they thus receive in the shape of maintenance is assimilated to income and taxed accordingly. This clause is apparently intended to apply to such cases as are frequently met with among the smaller peasant proprietors, where one member of the family takes over the house and land, subject among other conditions to that of providing his co-heirs with food and lodging.

The classes into which this category is sub-divided are as follows:—

Class.	Description.	Amount.	
		From—	To—
		£	£
1	Incomes up to	..	50
2	" between	50	100
3	"	100	200
4	"	200	400
5	"	400	800
6	"	800	1,600
7	" above	..	1,600

The same progressive rate is always maintained between each of these seven classes, and the tax at present is:—

Class.		Amount.
1	Per 100l.	£
2	22	2
3	22	3
4	22	4
5	22	5
6	22	6
7	22	7
	22	8

3. Proceeds of labour, including income derived from—

Proceeds of labour.

(a.) Commercial, industrial, and agricultural undertakings, after deducting 5 per cent. of any capital engaged in them that is already subject to a cantonal tax.

(b.) Salaries, wages, and emoluments received in any profession, trade, or vocation whatsoever.

Where wages are paid either partially or entirely in kind, the value of this form of remuneration is estimated according to the particular circumstances of each case.

This category is subdivided into the same seven classes as the preceding one, only that the rate of the tax is in each case reduced by one-half, being thus at the rate of 1l. per 100l. for the first, 1l. 10s. per 100l. for the second, and so on.

The State and certain cantonal communal institutions are exempted from the payment of any tax whatever on personal property, and in the case of private individuals the rateable value of the personalty does not include—

Exemptions from the tax on personalty.

(a.) The produce of the soil, the rents ("loyers et fermages"), and crops of the preceding year remaining in the possession of the proprietor, usufructuary, farmer, or metayer.

(b.) The furniture, clothes, and bedding required by the family, the kitchen utensils, tools, &c., up to a total value of 200l.

In estimating income derived from the proceeds of labour, deduction is made of the amount expended on working and carrying on the particular trade or industry, and of the cost of living. This latter is calculated at the rate of 16l. a year each, for the head of the family, his wife, and every child under age.

Debts are deducted from the total value of the personalty subject to taxation, and, if they entail the payment of an annuity, the deduction made is calculated at 16 times the amount of such annuity. Deductions of debt are also made in the case of persons liable to the tax on income or on the proceeds of labour.

Persons who are only resident in the canton during a portion of the year pay the tax on personal property in proportion to the length of their residence, and residents of less than three months are exempted from it altogether.

Tax payable in proportion to the length of annual residence.

Foreigners not born in the canton, and who are not engaged in any trade or profession in it, are only liable to taxation after a residence of two years, and then only for such property as they

Status of foreigners as regards the tax.

own within the canton. After a residence of 10 years they are placed on the same footing as natives, and are taxed on their entire fortune, no matter in what country it may be invested.

Fortune of a husband and wife treated as one.

Both the real and the personal property of a husband and wife—when the latter has no separate maintenance—as well as that of all children under age, are treated as belonging to one and the same person for the purpose of determining the class under which they are to be taxed.

Declarations of fortune and of income.

Each taxpayer is supplied with a form to be filled up by February 1 in each year, on which he has to declare the exact value of his personal property and the amount of the income which he derives either from pensions and usufructs, or from the proceeds of labour. These declarations are examined by the District Revenue Commissioners, and are by them forwarded for final revision to the Central Financial Commission of the canton. A section of the Cantonal Tribunal, termed the "Fiscal Court," tries all cases of infraction of the law, and persons proved guilty of false declarations are punishable by fines varying from 10 to 20 times the amount of any payment which they may have attempted to evade.

Increased revenue derived from these progressive taxes.

In the year 1890 the tax on real property yielded 43,956*l.*, and that on personal property 52,902*l.*, the population of the canton being 247,655. The increase to revenue accruing from the progressive taxes is about 6,000*l.*, and the Radical party point to this result as a proof of the successful working of the system which they have inaugurated.

Injury to trade and depreciation in the value of land said to have resulted from them.

Their opponents, on the other hand, assert that this fiscal gain is more than counterbalanced by the injury that has in certain cases been caused to local trade, and more especially by the great depreciation in the value of land which has followed the adoption of the progressive system of taxation. Some 10 wealthy families have, it is said, preferred to leave the canton rather than face the consequences of the new law, while many others regularly close their houses for nine months in the year, in order to profit by the clause which exempts from taxation all those whose annual residence in the canton does not exceed a period of three months. The fact, too, that foreigners are, after a residence of 10 years, placed on the same footing as natives and thus rendered liable to double income tax on all their property and investments at home, has made them much less anxious than formerly to possess estates entailing such heavy liabilities, and the value of many properties has in consequence fallen some 50 per cent.

Communal taxation.

It must not, moreover, be forgotten that, in addition to the cantonal taxes already referred to, there are in many districts of the Canton of Vaud very heavy communal taxes. The financial status of Swiss communes presents, however, too great a dissimilarity to render possible even an approximate estimate of their average rate of taxation. Some are possessed of lands and forests, and their burghers not only enjoy complete immunity from local rates, but are even entitled to share in the produce of the communal property. Others, on the other hand, are encumbered by

heavy debts, and impose on their members rates which are sometimes as high as 9 per cent., and instances have been known in the Canton of Vaud where the cantonal and communal taxes combined have attained the rate of 25 per cent.

In the Canton of Zurich both capital and income are subject to a progressive tax, but the manner in which it is levied differs from that adopted in the Canton of Vaud. In Zurich the rate of the tax does not itself progress, but the amount liable to the tax becomes proportionately larger as the fortune or the income increases.

The tax on capital is levied on—

1. The real and personal property of all persons established in the canton, whether such property be situated in the canton or not.

2. Landed property situated in the canton that is owned by anyone resident outside it.

3. The fortune of a non-resident that is administered by authorities in the canton.

Exemptions are granted in favour of certain cantonal and communal property, of landed property outside the canton that is subject to any tax in the country in which it is situated, and of the fortunes of non-residents administered in the canton where such fortunes are taxed at the place where their owners reside.

Clothes, books, labourers, and artisans' tools, and all necessary household furniture are also exempted, while in the case of orphans and persons unable to work an abatement—up to 120%—is made on the rateable value of their property. A deduction of debts is also made, but non-residents are required to prove that their property in the canton is not encumbered to a greater extent than their other possessions outside it.

Citizens of other cantons and foreigners become liable to the tax, as well as to that on income, on acquiring the status of persons established in the canton.

As already observed, the rate of the tax is not itself progressive, but the principle of progression is applied to the percentage of each fortune liable to assessment.

The present rate of the tax is 4% per 1,000L., and the amount on which it has to be paid is fixed as follows:—Five-tenths of the first 800L., six-tenths of the next 1,200L., seven-tenths of the next 2,000L., eight-tenths of the next 4,000L., nine-tenths of the next 8,000L., and ten-tenths of anything above this amount.

The following examples will explain the manner in which the system is applied:—

Canton of Zurich.

Tax on capital.

Exemptions.

Status of foreigners.

Present rate of the tax.

Illustrations of the working of the system.

Capital Value of Fortune.	Amount Liabie to the Tax.	Amount of Tax.
£	£	£ s. d.
800	400	1 12 0
2,000	1,120	4 9 8
4,000	2,520	10 1 8
8,000	5,720	22 17 8
16,000	12,920	51 13 8
40,000	36,920	147 13 8

Income tax. The income tax is levied on the earnings and incomes of all persons established in the canton, with the exception of income already taxed on its capital value under the tax on fortunes.

Abatement on incomes derived from trade. In the case of incomes derived from any trade or business an abatement is allowed of a sum not exceeding 5 per cent. of the working capital, as well of such expenses as are directly incurred in the earning of such incomes, the cost of housekeeping excepted.

Present rate of the tax. The rate of the tax is fixed at 2½. per 100½. for every 1½. per 1,000½. raised by the tax on capital, the present rate being consequently 8½. per 100½.

The first 20½. of income is in all cases exempted from the tax, while the amount on which it has to be paid on incomes above 20½. is fixed as follows:—Two-tenths of the next 60½., four-tenths of the next 60½., six-tenths of the next 120½., eight-tenths of the next 160½., and ten-tenths of any further sum.

Illustrations of the application of the tax. The examples given below illustrate the progressive character of this system:—

Total Income.	Amount Liabie to Income Tax.	Amount of Tax.
£	£	£ s. d.
20	..	..
80	12	0 19 2
140	36	2 17 7
260	108	8 12 9
420	236	18 17 7
2,000	1,816	145 5 7

Assessment of fortunes and incomes. The assessment of both capital and income is made in the first instance by the taxpayers themselves, subject to the control and revision of the tax-commissioners appointed for the different districts. Appeals against the decisions of the latter may be carried before a court specially constituted for this purpose. A fresh assessment is made every three years, but taxpayers are required to notify annually any changes in the amount of their fortune or income.

Differences between the systems in force in Vaud and Zurich. In the Canton of Zurich no distinction is made for purposes of taxation between real and personal property, as is the case in the Canton of Vaud, but both are taxed at the same rate on their capital value. The tax on real estate in the former canton is

consequently higher than in the latter, being, in the case of a property of a value of 40,000*l.*, 147*l.* 13*s.* 8*d.* as against 80*l.*

In Zurich, however, property, whether consisting of land or capital, is not liable to a double taxation, exemptions being granted to the owners of property in a foreign country if his property is taxed in that country, and to the non-resident owner of property in the canton when such property is taxed at his place of residence. The double taxation to which fortunes are liable in the Canton of Vaud is one of the chief grievances of foreign residents, and the exemptions granted in Zurich may perhaps to some extent counterbalance the higher rate of the tax on real estate. As, however, this canton does not offer the same attractions to wealthy foreign residents as the Canton of Vaud, the number of persons benefited by them is probably not very great.

The tax on personal property and on income is somewhat higher in Vaud than in Zurich. Thus a fortune of 40,000*l.* would pay a tax of 200*l.* in the former as against 147*l.* 13*s.* 8*d.* in the latter, and an income of 2,000*l.*, if not derived from the proceeds of labour, would pay 160*l.*, or if derived from the latter source, 80*l.*, as against 145*l.* 5*s.* 7*d.*

In the Canton of Geneva there is a progressive tax on Geneva. personal property.

Fortunes under a capital value of 120*l.* are not subject to Tax on the tax; those under 2,000*l.* pay nothing on the first 120*l.* and 1*l.* Tax on personal property. per 1,000*l.* on the rest; and those above 2,000*l.* pay 1*l.* 17*s.* 6*d.* on the first 2,000*l.*, 2*l.* per 1,000*l.* on the next 8,000*l.*, and 3*l.* on every 1,000*l.* above 10,000*l.*

Thus a fortune of a capital value of 40,000*l.* would be assessed as follows:—

	Amount Liabie to Tax.	Amount of Tax.
	£	£ s. d.
On the first	2,000	1 17 6
“ next	8,000	16 0 0
“ “	30,000	90 0 0
Total	..	107 17 6

The tax is levied on personal property generally, with a few special exceptions, wheresoever situated, and also on the real estate which any resident in the canton owns outside the canton.

Foreigners exercising any trade or profession in the canton and those who are born and domiciled in it are placed on the same footing as natives.

The tax also applies to all usufructs, pensions, annuities, &c., Incomes and usufructs. their capital value being estimated at—

				Age.	Number of Times their Amount.
Up to the age of	..	..	..	40	12
From	"	..	..	41 to 45	11
"	"	..	..	46 50	10
"	"	..	..	51 55	9
"	"	..	..	56 60	8
"	"	..	..	61 65	7
"	"	..	..	66 70	6
"	"	..	..	71 75	5
"	"	..	..	76 80	4
"	"	..	..	81 85	3
"	"	..	..	86 90	2
Above	..	..	..	90	1

Progressive
tax on
domestic
servants.

The progressive principle has also been applied in the Canton of Geneva to the tax on domestic servants. The rate progresses as follows :—

				Amount of Tax.
For the first	..	..	..	s. d.
" second	..	..	..	8 4
" third	..	..	..	8 4
" fourth	..	..	..	12 6
"	..	..	..	17 6

The Grisons.

Tax on real
and personal
property.

With a cumulative rise of 6s. 8d. for every additional one. In the Canton of the Grisons there is a progressive tax on fortunes and on income, the former being levied on all real and personal property above a capital value of 40l. Its rate at present is 5s. per 100l. on fortunes between 40l. and 800l., while with every additional 1,200l. the rate continues to rise by one-tenth, till the maximum of ten-tenths is reached with fortunes of a capital value of 12,800l. Fortunes are consequently not taxed at one and the same rate on their total capital value, but at rates varying with each successive sum of 1,200l. of which that total is made up. Thus a fortune of 12,800l. would be assessed as follows :—

Rateable Divisions of Fortune.	Rate per 100l.	Amount of Tax.
£	s. d.	£ s. d.
800	5 0	2 0 0
1,200	5 6	3 6 0
1,200	6 0	3 12 0
1,200	6 6	3 18 0
1,200	7 0	4 4 0
1,200	7 6	4 10 0
1,200	8 0	4 16 0
1,200	8 6	5 2 0
1,200	9 0	5 8 0
1,200	9 6	5 14 0
1,200	10 0	6 0 0
Total tax ..	..	48 10 0

The above example is a good illustration of the working of the system, as it enables one to calculate at once the tax paid by any fortune between 800l. and 12,800l., while every additional 100l. above this amount is liable to a tax of 10s. Taking for instance, as in previous cases, a fortune of a capital value of 40,000l., we find that the tax payable would amount to 184l. 10s., a rate considerably higher than is met with either in Vaud or Zurich. The Canton of the Grisons, however, has no important industrial centres like Zurich, nor such wealthy residents as the Canton of Vaud, so that it is somewhat unfair to take as a standard of comparison a fortune which, by reason of its exceptional amount, was probably not taken into account when the progressive rate of the tax was under consideration. On fortunes of a lower order, such as one of a capital value of 8,000l., the tax is not much higher than in Vaud or Zurich, being 26l. 6s., as against 25l. and 22l. 17s. 8d. Large fortunes are, as a rule, very rarely met with in Switzerland, and it must therefore be borne in mind that the framers of these various systems of graduated taxation have not adapted the scale of their rates to extend to the class of fortunes with which Englishmen are familiar.

Illustrations
of the
working of
the system.

The rates not
intended to
extend to very
large fortunes.

Double taxation is not enforced in the Grisons, and exemptions are therefore granted to the non-resident owner of real and personal property in the canton when such property is taxed at his place of residence, and to the resident owner of property outside of the canton that is already taxed in the country in which it is situated.

Exemptions.

The tax on income, in the restricted sense of that term, is levied on incomes under 32l. at the rate of 5s. per 100l. for every 1l. per 1,000l. raised by the tax on capital. On incomes above 32l. the system followed is somewhat similar to that adopted in the case of the tax on capital, the rates of the tax being:—

Income tax.

	Amount of Income.	Rate of Tax.
	£	Per cent.
For the first	32	$\frac{1}{4}$
" next	28	$\frac{1}{4}$
"	20	1
"	40	$1\frac{1}{2}$
"	40	2
"	40	$2\frac{1}{2}$
"	20	3
"	20	$3\frac{1}{2}$
"	20	4
"	20	$4\frac{1}{2}$
"	200	5
For any further sum	..	$5\frac{1}{2}$

The present rate of the tax on capital is 2*l.* 10*s.* per 1,000*l.*, so that the rates of the income tax must be raised in proportion from $\frac{1}{4}$ per cent. to $\frac{3}{8}$ per cent. on the first 32*l.*, from $\frac{1}{4}$ per cent. to $1\frac{1}{2}$ per cent. on the next 28*l.*, and so on.

Illustrations
of the tax as
levied on an
income
of 500*l.*

This somewhat complicated system will be best explained by showing how the tax is levied on an income of 500*l.*—

Rateable Divisions of Income.	At—	Rate of Tax.
£	Per cent.	£ s. d.
32	$\frac{3}{8}$	0 4 0
28	$1\frac{1}{4}$	0 7 0
20	$2\frac{1}{2}$	0 10 0
40	$3\frac{1}{2}$	1 10 0
40	5	2 0 0
40	$6\frac{1}{2}$	2 10 0
20	$7\frac{1}{2}$	1 10 0
20	$8\frac{1}{2}$	1 15 0
20	10	2 0 0
20	$11\frac{1}{2}$	2 5 0
200	$12\frac{1}{2}$	25 0 0
20	$13\frac{1}{2}$	2 15 0
Total tax ..	..	42 6 0

The rate of the tax on the total income is thus nearly $8\frac{1}{2}$ per cent.; a rate considerably higher than that which would be imposed on an income of the same amount in the Canton of Vaud. Here again, however, it must be remembered that, owing to the difference in the economic conditions of the two cantons, an income of 500*l.* in the Grisons represents, for purposes of taxation, the same standard of value as an income of 1,600*l.* in the Canton of Vaud, these amounts being taken in the respective cantons as the maximum point beyond which the rate of the tax—in both cases 8 per cent.—ceases to progress.

Exemptions.

Exemptions from the income tax are granted on earnings

derived from agriculture, on earnings under 8*l.*, on earnings under 32*l.* when the taxpayer owns no real or personal property subject to the tax on capital, and under 28*l.* and 34*l.* when the amount of such real and personal estate does not exceed 120*l.* and 200*l.* respectively.

In the Canton of Uri the tax, both on fortunes and incomes, Uri. becomes progressive after the sum of 1,200*l.* is reached by the former and that of 40*l.* by the latter.

The tax on fortunes is levied on real and personal estate in Tax on the same manner as in the Canton of Zurich, only that fortunes fortunes. under a capital value of 80*l.* are exempted from the tax, and that a fresh evaluation of all real estate takes place every 15 years.

Fortunes under a capital value of 1,200*l.* pay at the rate of 10*s.* per 1,000*l.*, and the amount payable by fortunes above that sum progresses as follows:—

Amount of Fortune.		Rate of Tax per 100 <i>l.</i>		
From—	To—			
£	£	£	s.	d.
1,200	2,000	0	12	0
2,000	3,200	0	14	0
3,200	4,000	0	16	0
4,000	5,000	0	18	0
5,000	6,000	1	0	0
6,000	8,000	1	2	0
8,000	10,000	1	4	0
10,000	12,000	1	6	0
12,000	14,000	1	8	0
14,000	16,000	1	10	0
Above 16,000	..	1	10	0

The classes of incomes subject to the income tax are practically Tax on the same as in the Canton of Zurich, but the exemptions granted income. are rather more numerous. Thus all earnings, of which the annual amount does not exceed 28*l.*, or in the case of workmen and servants employed and boarded by others 12*l.*, are exempted from the tax, while on incomes derived from any trade or industry the abatement allowed is fixed at 4½ per cent. of the working capital.

The rate of the tax is 5*s.* per 100*l.* on incomes under 40*l.*, and progresses as follows on incomes above that amount:—

Income.		Rate of Tax per 100l.
From—	To—	
£	£	£ s. d.
40	80	0 7 0
80	120	0 9 0
120	160	0 12 0
160	200	0 16 0
200	240	1 0 0
240	280	1 4 0
280	320	1 8 0
320	360	1 12 0
360	400	1 16 0
400	..	2 0 0

The progressive rates in Uri are not, as in the Grisons, payable on each successive fraction, but on the total amount of the fortune or income. Those above quoted do not, however, necessarily represent the actual amount of the tax levied, which is voted every year by the people in the Landes-gemeinde, but the proportional rate as established by law between each successive stage attained by either fortune or income.

Proposed system of graduated taxation rejected by the Referendum in the Canton of Berne.

Such, then, is an outline of the principal systems of graduated taxation at present in force in Switzerland. A measure, however, which was passed two years ago by the Grand Council of the Canton of Berne, although eventually rejected at the Referendum, deserves notice on account of the different method by which its authors sought to throw an increased proportion of the taxes on the wealthier classes.

Proposed tax on real and personal property and on incomes.

The proposed tax was to be levied on real and personal property and on incomes, but a distinction was to be made between agricultural property, whether consisting of land or buildings, and other kinds of real estate, the proportional rate to be maintained between them being fixed at 1l. per 1,000l. for the former and 1l. 4s. per 1,000l. for the latter.

On personal property and on all interest bearing capital the proportional rate was fixed at 1l. 10s. per 1,000l., while on incomes above the annual value of 48l. it was to be the same per 100l. as it was per 1,000l. on personal property.

The actual rate of the tax was to be voted every year by the Grand Council, but any decision of that body raising it to more than double that of the proportional rates above given was to be submitted to the people for ratification at the Referendum.

Proposed abatements of income tax.

Incomes below 20l. were to be entirely exempted, and a fixed tax of 1s. 8d. was to be levied on—

Incomes under 32l. in the case of unmarried or childless married persons.

Incomes under 40l. in the case of married persons with two or three children.

Incomes under 48l. when the number of children exceeded three.

In order, moreover, to increase the contributions of the rich it was proposed to institute, instead of a progressive tax on capital and income, an additional tax to be levied whenever the total amount of the taxes paid by any one taxpayer should exceed the sum of 8*l*.

The rate of this additional tax was to be graduated as follows:—

	Amount.		Rate of Tax.
	From—	To—	
	£	£	Per Cent.
On all taxes between	9	16	5
" " " " " "	17	24	10
" " " " " "	25	32	15
" " " " " "	33	40	20
" " " " " "	41	48	25
On all taxes above this			
amount	..	..	30

For instance, if the rate of the tax voted by the Grand Council were 3*l*. per 100*l*. on personal property, a fortune of a capital value of 2,500*l*. would pay a tax of 7*l*. 10*s*., while one of a capital value of 40,000*l*. would pay a tax of 120*l*., together with an additional tax of 30 per cent. on the tax itself, thus making the total amount of the tax 156*l*. The gradation here is not so marked as is the case in the Canton of Vaud, where the tax would rise from 6*l*. 5*s*. on a fortune of 2,500*l*. to 200*l*. on one of 40,000*l*.

The measure, however, was not destined to be put into execution, being rejected at the Referendum by an overwhelming majority of the very classes for whose special benefit it had been prepared. It was thus to a peculiarly democratic institution that the wealthier classes of the canton owed their escape from a threatened increase of their fiscal burdens, while, in striking illustration of the anomalies so often presented by the Referendum, the Radical party was returned to power by a very large majority on the same day that witnessed the rejection of the most important measure which it had passed in the previous session of the Cantonal Grand Council.

Rejection of
the measure
at the
Referendum.

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SWITZERLAND.

BERNE.

Mr. Scott to the Earl of Rosebery.

My Lord,

Berne, December 31, 1892.

I HAVE had the honour to receive your Lordship's despatch instructing me to report on the working of any system in force in this country analogous to that adopted in Sweden for the control of the sale of spirituous liquors.

After careful enquiry I am led to the conclusion that there is a very wide difference in regard to object and effect between the system known as the Gothenburg system and the alcohol monopolies as exercised by the Confederation and the urban Canton of Bâle. Comparison of Swedish and Swiss system.

The Federal Alcohol Monopoly applies exclusively to the importation, purchase, and re-sale of raw spirits, but the Régie does not supply the market directly with spirits in a potable form, but only with the essential materials for its final preparation. It has no control over the ultimate distribution of this spirit, nor any control over the manner in which it is dealt with after passing under the Régie. It does not apply to wine or beer, and though it extends to native spirit extracted from beer, potatoes, &c., it does not touch spirit extracted from home-grown fruits. Nature of Federal Alcohol Monopoly.

The objects of this monopoly were principally fiscal and sanitary. In the latter respect it has had the undoubted advantage of ensuring the purity of the spirit supplied to the retail trade, although it has not the authority necessary to guard against dilution or adulteration before it reaches the individual consumer, nor has it any power to restrict or control the amount of consumption. Objects of monopoly.

The introducers of the monopoly had the further object of diminishing the amount of general consumption, and endeavours have been made to deduce from the annual statistics published by the monopoly administration the conclusion that it has practically had this desired effect, but in advancing this conclusion care must be taken to exercise great reserve, and to take into consideration the admissions made in the annual reports:—

(1456)

1. That the statistics published previous to the establishment of the alcohol monopoly entered as home consumption large quantities of spirit smuggled out of the country and not actually consumed by the population.

2. That the consumption of spirits extracted from native fruits finds no place in the statistics available for the monopoly.

3. That there is every reason to suspect that a certain portion of the raw spirit, which is officially denaturalised each year by the Régie, is again fraudulently made potable after it has left the control of the Régie.

With these reserves, the conclusion may still be made that a considerable decrease of native consumption has practically taken place since the introduction of the federal monopoly.

Disposal of
profits.

In order to ensure the moral aim of the monopoly the law establishing it provides that one-tenth of the profits of the monopoly, which are distributed among the cantonal Governments, must be applied by them in combating the causes and effects of alcoholism.

The Federal Council appear to be justified in criticising rather severely the employment which many cantons have made of this portion of the sums handed over to them.

The sum which, according to the provisions of the law, ought to have been spent by the cantons in combating the causes and effects of alcoholism, amounted for the year 1891 to 565,123 fr. (22,605*l.*). Of this sum about 18,500*l.* has been expended on objects more or less connected with the prescribed aim, and 4,000*l.* is still held in reserve.

But of the 18,500*l.* only about 4,600*l.* has been devoted to combating the causes of alcoholism, and the remainder of 61 per cent. of the united tenths have been applied to objects of relief for the benefit of sufferers from the effects of intemperance, and some of these objects have only a very remote connection with the aim of the law, and are clearly objects which ought to be supported out of the ordinary cantonal or communal budgets, as in the case of the canton of Valais, which has devoted the whole of the tenth of its profits from the monopoly to the construction of a normal school, while other cantons have applied the whole sum to supporting lunatic asylums, workhouses, refuges for pauper and abandoned children, subsidies to cantonal poor-houses, &c.

Views of
Federal
Council on
action of
cantons.

The Federal Council condemns this mode of appropriation as too exclusive, and, while insisting on the necessity of devoting a large proportion of the tenths to combating the causes of alcoholism, suggests the following as legitimate objects in the appropriation :—

I. The education, protection, and moral improvement of the young, *i.e.* :—

1. Assistance of abandoned children and young criminals in suitable institutions.
2. The protection of guardianless children (asylums for boys and girls).

3. Support of children of weak intellect and epileptics.

II. Placing pauper lunatics in asylums and assisting their families.

III. Improvement of popular food supplies, creation of store societies, subsidies to existing societies having the exclusive aim of public utility, subventions to popular kitchens and canteens.

IV. The support of poor school children by supplying them with nutritious food and subsidies to holiday colonies.

V. Popular instruction on the disastrous effects of alcoholism and the beneficial effects of sobriety and economy; the propagation of moral and useful books; the foundation and support of reading rooms.

VI. The foundation and support of asylums for inebriates.

In the second place a portion of the tenths ought to be applied:—

I. As subventions to houses of labour and correction, or to placing persons in such establishments.

II. To assist and protect discharged prisoners.

III. As assistance in kind to passing pauper travellers.

It remains to be seen how far the cantons will adopt these suggestions in the future, or whether it will be found necessary to give the Federal authorities some power of control over the manner in which the proceeds set apart by the law are dealt with by the cantons.

It may not be out of place to refer in connection with this subject to the powers which the communes of several cantons like that of Berne possess and exercise in the case of habitual inebriates in order to safeguard the general interests of the community.

Powers of
Communes in
regard to
habitual
inebriates.

If the communal authorities have sufficient grounds to satisfy them that any member of the commune is recklessly dissipating his property and means of livelihood in such a manner as to render it probable that he or his family will eventually become chargeable on the communal funds, they can interfere administratively by placing him and his property under guardianship, and if it is a case of an habitual drunkard, into an asylum for inebriates.

The canton of the town of Bâle has given its Government the monopoly of the retail of the Federal alcohol, thus offering a surer guarantee of its purity to the eventual consumer. The authorities can by this means follow the spirit through later stages in its way to its ultimate destination, and collect further statistics with regard to the actual home consumption, but I cannot ascertain that it has given them any power of control over the distribution of the spirit by the individual purchasers from the Cantonal Régie, or that the effect of this monopoly, which does not touch wine or beer, has been to diminish the number of public houses or the consumption of intoxicating liquors in Bâle more than in any other part of Switzerland.

I do not think it probable that the Swiss of any canton would readily accept any legal restrictions on their individual liberty in the matter of consumption of food or drink.

Little is known or can be ascertained at the central seat of Federal Government respecting the actual working details of the monopoly adopted by the Government of Bâle Town, and I have been referred for any further information on this subject to the authorities of that town.

I have, &c.
(Signed) CHARLES S. SCOTT.

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Reference to previous Report, Miscellaneous Series No. 222.

TUNIS.

TUNIS.

Consul-General R. Drummond-Hay to the Earl of Rosebery.

My Lord,

Tunis, June 29, 1893.

WITH reference to my despatch of January 25, 1892, I have the honour to transmit to your Lordship herewith a Report on the extension of the Railway System in Tunisia under a Beylical concession granted to the Bône-Guelma Railway Company on October 12, 1892.

I have, &c.
(Signed) R. DRUMMOND-HAY.

Report on the Extension of the Railway System in Tunis.

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The agreement concluded between the French and Tunisian Governments and the Bône-Guelma Company for the development of the railway system in Tunis has been submitted to the French Parliament, and there is now every prospect of a fulfilment of the schemes which have been so long in suspense. Agreement with the Bône-Guelma Company.

The Bône-Guelma Company who have held a Beylical concession since 1880 for the construction of the Medjerdah Railway (1606) Beylical concession.

and its branch lines, concluded on October 12, 1892, an agreement with the Tunisian Government, subject to the approval of the French Government, for the construction of a railway system in the regency of 350 kiloms. in length with a gauge of 1 metre.

The cost of these railroads has been estimated at about 2,080% per kilom., with the exception of the Zaghouan-Susa line valued at 1,800% per kilom.

The agreement stipulates that the railroads shall be constructed with the capital of the Tunisian Government, the company undertaking to make any necessary advances of sums which the Government might be unable to provide during the first years of the undertaking.

The projected lines are:—

1. Tunis to Susa via Zaghouan, Bouficha, and Enfidaville, with a branch line through the Fahs Plain.

2. Susa to Kairwan, starting from a junction on the above-mentioned line at Kalaa Kebira and passing by Kroussiah and the camp of Sidi-el-Hani.

3. Susa to Moknine via Msaken with eventual prolongation to Sfax.

4. Branch line, on the Tunis-Susa Railroad, to Nabeul, passing by Mornag, Khanguet, Grombalia, and Hammamet.

5. Prolongation of the Tunis-Hammam-el-lif line to Menzel-Bou-Zelfa, and passing by Fondouk, Djedid, and Soliman with eventual prolongation to Kelibia (Galippia).

The capital of the first two railroads has been estimated at 10,984,580 fr., equivalent to about 439,383%, in which sum is included the conversion of the Tunis-Hammam-el-lif line from broad to narrow gauge, &c. The capital to be expended on the other lines will be fixed hereafter by mutual consent, when the projects have been definitively approved.

The Tunisian Government is empowered to exact from the company the completion of these lines within a period of 5 years, dating from the approval of the agreement, but they have reserved to themselves the faculty of delaying the construction of some of the branch lines, with a view to lessen, in case of necessity, the onerous expenses of the undertaking.

The railroad which is to connect Bizerta with Tunis by a branch from the station of Djedeida on the Medjerda main line is already in course of construction, and the works are being actively pushed forward by "La Société des Batignolles" in behalf of the Bône-Guelma Railway Company, who have agreed to complete the railroad in the space of 2 years at a cost of 224,000%. When this line is opened, all losses in its management will be borne by the Bône-Guelma Company, and any surplus will be first employed towards the reimbursement of deficiencies with interest calculated at 4 fr. 60 c. per cent.

This line will traverse the fertile plains of Mateur, and skirt the western shores of Lake Bizerta up to the quays of the new port, which will be probably opened to navigation about the same time as the completion of the railroad.

FOREIGN OFFICE.
1893.
MISCELLANEOUS SERIES.

N^o. 288.
REPORTS ON SUBJECTS OF GENERAL AND
COMMERCIAL INTEREST.

TURKEY.

REPORT ON THE
JAFFA-JERUSALEM RAILWAY (WITH PLANS).

*Presented to both Houses of Parliament by Command of Her Majesty,
MAY, 1893.*

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No. 288.

TURKEY.

JERUSALEM.

Consul Dickson to the Earl of Rosebery.

My Lord,

Jerusalem, March 29, 1893.

I BEG to submit to your Lordship a few remarks on the Construction of the Line from Jaffa to Jerusalem opened on September 26 last, and to enclose plans.

I have, &c.

(Signed) JOHN DICKSON.

Remarks on the Construction of the Line from Jaffa to Jerusalem.

ABSTRACT of Contents.

	PAGE
History and construction of railway	2
Details as to route, number of bridges, &c.	3
Locomotives, carriages, rails, &c.	4
Villages on line and times of departure of trains	4
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Cost of making harbour	6
Financial position of railway company	6
Projects to extend line	7

Projects for a railway.

A few years back a native gentleman in Egypt, named Lutfy Bey, conceived the project of making a railway between Egypt and Palestine, and the idea was taken up by a Jew in this city, Mr. Navon, who placed himself in communication with Lutfy Bey on the subject. It was intended that the latter should obtain a concession for a line to El-Arish, on the Egyptian frontier, and that Mr. Navon should undertake the construction of the remaining part to Jaffa and Jerusalem. This project, however, fell through, and Mr. Navon then proceeded to make arrangements for procuring a concession from the Turkish Government for a line from Jaffa to Jerusalem, with a possible extension to Damascus and Aleppo.

Purchase of concession by "Société Ottomane Anonyme."

Negotiations were accordingly entered into with the Sublime Porte, and in 1888 the concession, for a period of 71 years, was obtained, which Mr. Navon offered to sell to various firms in London and Paris. It was, however, ultimately purchased for 1,000,000 fr. by a company in Paris, under the name of "Société du Chemin de Fer Ottomane de Jaffa à Jérusalem et Prolongement," or shortly, "Société Ottomane Anonyme," the director of which is a certain M. Collas, who is also president of the "Compagnie des Phares" (Lighthouse Company) in the Ottoman Dominions.

Contract with "Société des Travaux" for construction of line.

In 1889 the company entered into a contract with an engineering firm, "La Société des Travaux Publics et Constructions," for the construction of the works, which, according to the convention signed by the Porte, were to be completed in two and a half years from their commencement, and the first turf was cut at Jaffa on March 31, 1890. The terms of the contract were the payment of 10,000,000 fr. (400,000*l.*) to the "Société des Travaux," partly guaranteed by debenture bonds and shares, and the right of the latter to work the line, after completion, for a period of five years for a stipulated sum to be paid annually to the company. The works were proceeded with vigorously, and although many doubts were entertained as to whether the line would be finished in the time agreed upon, on account of the obstacles to be encountered in the mountains, yet they were completed on September 26 last, when the inauguration of the line took place with considerable ceremony.

Course of the railway.

The line, which is a single one, starts from the northern suburbs of the town of Jaffa, close to the sea shore, winds gradually round to the east and south past Ramleh and among the sandhills, until it reaches the torrent called Wady Surar, when it turns again to the east and follows the latter stream up the mountain gorge named Wady Ismaïn as far as the plain of Rephaïm, situated to the south of Jerusalem. It then traverses the latter and terminates to the south-west of Jerusalem, about half a mile from the Jaffa gate. There are five stations along the line, not including the two termini, namely, Lydda, Ramleh, Sejed, Deir-Aban, and Bittir, and their respective distances from Jaffa are as follows:—19, 22, 39, 50, and 75 kiloms., the entire length of the line from Jaffa to Jerusalem being

Stations on the line.

87 kiloms., or about 54½ miles. The different stations are well built, and are provided with all the material necessary for such places, such as telegraph apparatus, tanks for water, &c. There is a double line of rails at each station. In reality there are only three important stations on the line, namely, Lydda, Ramleh, and Bittir, the two former being large villages containing 6,000 or 7,000 inhabitants each, and the latter the most prosperous mountain village on the line in the vicinity of Jerusalem, and well supplied with water. At Sejed a station was built, as His Majesty the Sultan has a "chiftlick," or farm, close at hand, and another was placed at Deir-Aban for the convenience of the Latin Convent, situated on the hills a little to the south. Artûf, the Jewish agricultural colony, under English management, is also close to the latter station.

The line is of 1·04 metres gauge, and in some places is well built, though in others it has hardly had time to settle, and is not sufficiently firm. There are 176 bridges in all, seven of which are of cast-iron, the rest being of stone.

The length of the metal bridges and their respective distances from Jaffa are as follows :—

	Length.	Distance from Jaffa.		Number of bridges and their distances from Jaffa.
		Metres.	Kilometres.	
Wady Surar	25	36·75		
Wady Nadjel	10	51·50		
Wady Surar	80	57		
Wady Surar	80	58		
Wady Djemal	10	74		
Wady Surar	16·20	76		
Over a ravine	6	78·79		

The gradient is in the mountains rather steep, the rise of the land above sea-level being about 2,500 in 54 miles. Along the plain it is about 1 in 200, but after entering the mountains it increases to a little less than 1 in 50. The construction of the line in the mountains was very difficult, and as, for the sake of economy, tunnelling was avoided the permanent way is in some places serpentine in its course, and the cuttings and embankments are very numerous. The line keeps as much as possible to the south of the torrent called Wady Surar, and at an elevation along the side of the mountain of about 30 or 40 feet from the bed of the ravine ; but in places where there is a sudden bend in the gorge, it crosses the stream to the opposite side, and then back again. As it approaches Jerusalem it again goes to the north side of the valley. Many of the cuttings in the rocks were very costly, and large quantities of blasting powder were used, but along the plain, where they are also numerous, on account of the sandhills, the work was comparatively easy. The embankments in the plain vary in height from a few feet to about 15 or 20

Engines and
carriages.

Locomotives
made at
Baldwin
Works,
Philadelphia.
Rails from
Belgium.

The
permanent
way.
Curves.

Villages on
the route
traversed.

feet, the longest being about 200 or 300 yards in length. The inclosed plan in profile will show exactly all the variations of the line. The engines and carriages are all imported from the United States. The latter are lightly built and suitable to warm climates. The width of the carriages is 2.50 metres, and they consequently overhang the rails somewhat. There are five locomotives at present in use, manufactured at the Baldwin Works, Philadelphia, and of the ordinary type for narrow gauges. The rails are of Belgian manufacture, but are light and cheap, and are 7 metres in length. They are laid across the usual number of sleepers, 10 to each pair of rails. The permanent way is still in an imperfect condition and needs constant attention, the ground being in many places not sufficiently firm. The result is that the sleepers are apt to sink, especially after rainy weather, causing the waggons occasionally to run off the rails. The "Compagnie des Travaux" are, however, bound by contract to maintain the line in good order for the next six months (up to April 1, 1893). Many of the curves along the line are exceedingly abrupt and require altering, which will entail a considerable amount of labour for some time to come. There have, however, so far, been no mishaps of a serious nature, and as the imperfections are gradually remedied the line will be more frequently used. The villages situated on or near the route traversed by the railway are as follows:—

Villages.						Population.
Yazur	..	..	..	..	..	960
Beit Dejan	..	..	..	..	..	1,044
Safirieh	..	..	..	..	..	940
Lydda	..	..	..	..	..	6,540
Ramleh	..	..	..	..	..	5,172
Naaneh	..	..	..	..	..	738
Sidoun	..	..	..	..	..	94
Khulda	..	..	..	..	..	60
Artûf	..	..	..	..	..	106
Deir-el-Hawa	..	..	..	..	..	154
Deir-el-Sheikh	..	..	..	..	..	134
Er-Ras	..	..	..	..	..	280
El-Kabu	..	..	..	..	..	88
Bittir	..	..	..	..	..	450
Welejah	..	..	..	..	..	732
Malhah	..	..	..	..	..	626
Sharafat	..	..	..	..	..	84
Beit Safafa	..	..	..	..	..	384

Number of
daily trains
and times of
departure.

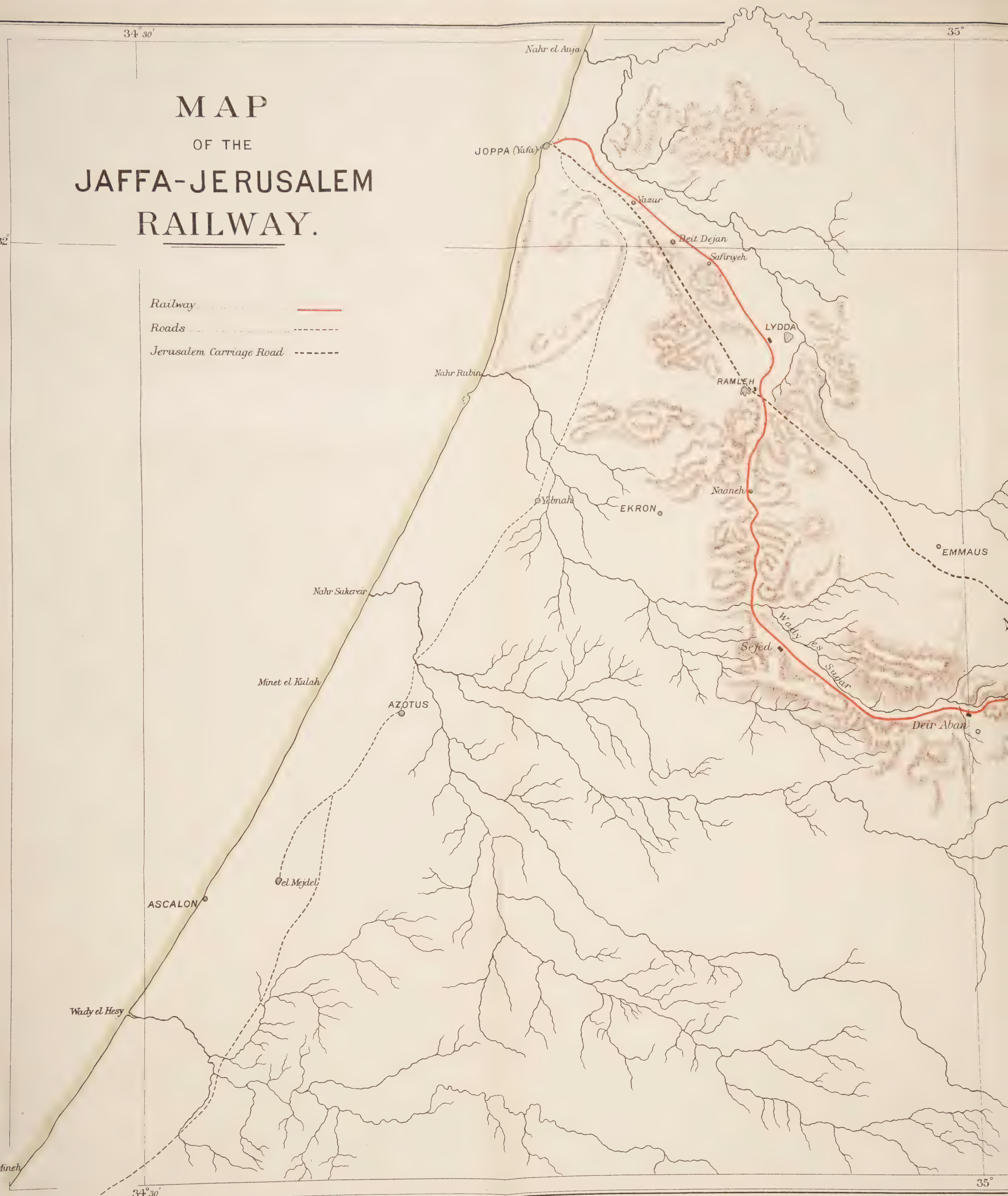
At present there are only two daily trains for passengers, running one each way, and the times of arrival and departure are as follows:—

34° 30'

35°

MAP OF THE JAFFA-JERUSALEM RAILWAY.

Railway
Roads
Jerusalem Carriage Road



35°

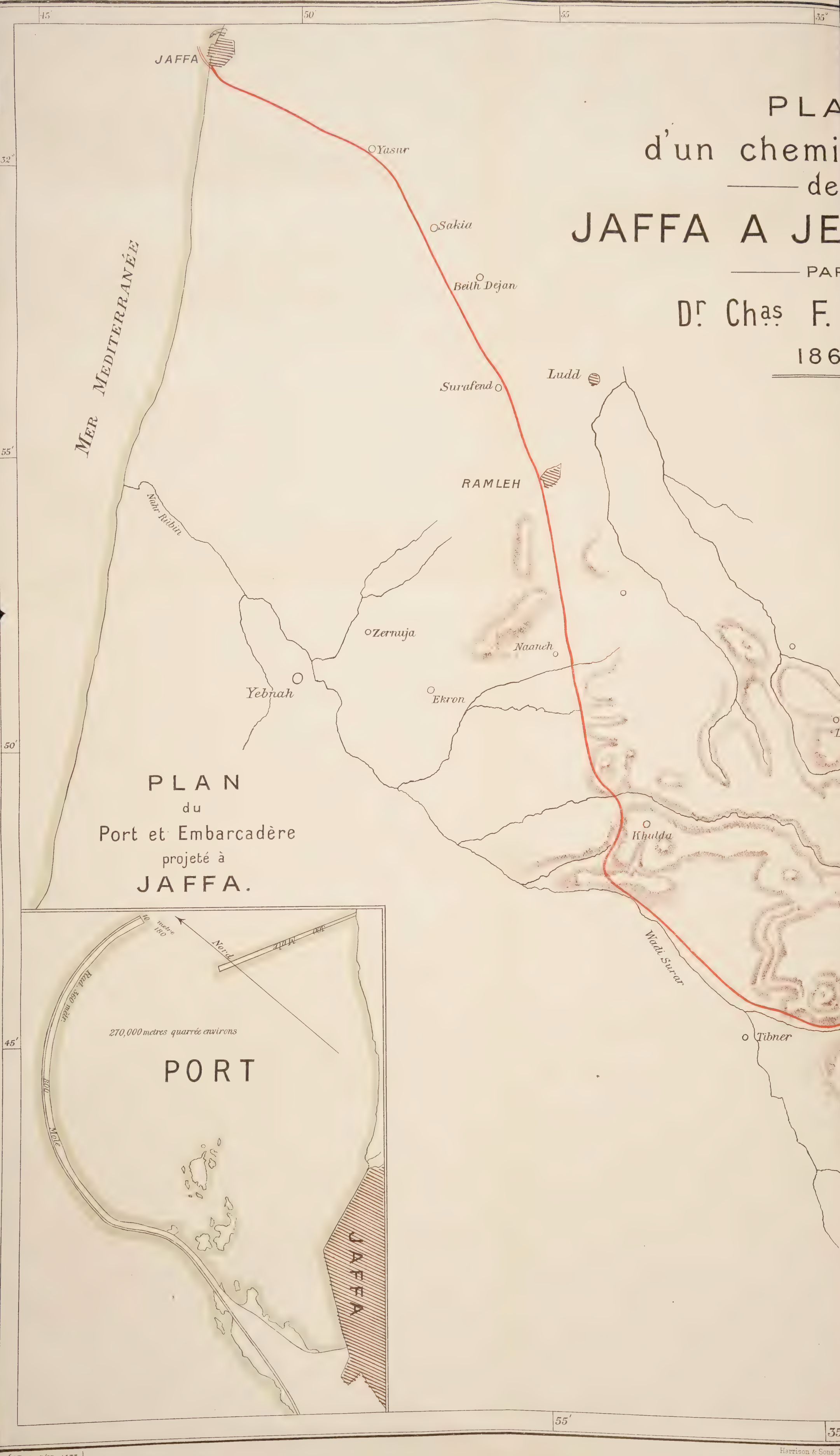
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GAZA





PLAN
d'un chemin
de
JAFFA A JERUSALEM
PAR
DR Chas. F.
1866

PLAN
du
Port et Embarcadere
projeté à
JAFFA.

270,000 metres carrée environs

PORT

JAFFA

AN
n de fer
RUSALEM
Zimpel.

4.



FROM JAFFA TO JERUSALEM.

Stations.	Arrival.	Departure.
	P.M.	P.M.
Jaffa	..	2.20
Lydda	2.56	2.58
Ramleh	3.5	3.7
Sejed	3.39	3.47
Deir-Aban	4.7	4.9
Bittir	5.24	5.26
Jerusalem	5.55	..

FROM JERUSALEM TO JAFFA.

Stations.	Arrival.	Departure.
	A.M.	A.M.
Jerusalem	..	7.15
Bittir	7.44	7.46
Deir-Aban	9.1	9.3
Sejed	9.23	9.31
Ramleh	10.3	10.5
Lydda	10.12	10.14
Jaffa	10.50	..

The price of tickets is: 1st class 15 fr., 2nd class 5 fr., for the whole distance, and 1st class return tickets 20 fr. Two goods trains also run one each way, starting at night from Jerusalem and Jaffa respectively.

Price of railway tickets.
Goods trains.

There will, however, never be any very considerable development in trade and consequent increase in the traffic of the railway as long as Jaffa remains an open roadstead, and I would venture here to offer a few remarks on the construction of a harbour at that place.

Construction of harbour at Jaffa.

As far back as 1862 Mr. Zimpel, a German by birth, but a naturalised American, and an engineer by profession, drew plans for building a breakwater at Jaffa, and for constructing a railway from that port to Jerusalem. The railway, as will be seen from the accompanying plan made by him, was to follow almost the identical route of the one just completed, and, indeed, the engineers, in making the present line, had carefully studied the plans drawn by Mr. Zimpel. The line of railway projected by Mr. Zimpel was to be continued from Jerusalem to Jericho, up the valley of the Jordan, and on to Damascus; but he foresaw that the traffic with the interior would never become very extensive unless a proper harbour could be built at Jaffa, where vessels could load and unload with safety in all weathers. The plans made by Mr. Zimpel would seem to answer these requirements, for the breakwater projected by him would be so constructed as to shelter vessels from the westerly gales, which in

Project for harbour and railway by Mr. Zimpel in 1862.

Size of
projected
harbour at
Jaffa.

Cost of
making
harbour.

Financial
position of
railway
company.

Working of
line leased to
"Compagnie
d'Exploita-
tion."

Capital and
liabilities of
company.

winter are so severe that steamboats are often not even able to anchor, much less to communicate with the shore, and the loss of life from the capsizing of shore boats is every year considerable. The greatest breadth of the harbour would be about 720 metres, and it would cover an area of about 270,000 square metres, which would give sufficient space for steamboats and sailing craft to discharge without inconvenience. The greatest depth within the breakwater would be about 30 feet, but as the bottom consists of loose sand, the depth could be increased by dredging. The cost of making such a harbour has been variously estimated, but including the expense of the construction of proper quays, warehouses, &c., it cannot fall far short of 20,000,000 fr. (800,000*l.*). The benefit, however, accruing to commerce, and the country generally, would be very great, otherwise the railway, in order to become a successful undertaking, would have to be continued on to Port Said, which would virtually be the port of Palestine.

With regard to the financial prospects of the Jaffa-Jerusalem Railway, I beg to submit the following remarks. The capital of the company consists of 9,000,000 fr. in obligations and 4,000,000 fr. in shares, the former having been issued at 500 fr. each, but are now quoted in Paris at something over 300 fr. The shares have not yet been put in the market, but it is expected they will be issued next spring, when the pilgrims visit Jerusalem, and when, consequently, there will be most traffic on the line. Although the contract for the construction of the line by the "Société des Travaux" was signed by 10,000,000 fr., the actual cost, it is stated, did not amount to more than 8,500,000 fr. The right which the "Société des Travaux" had to work the line on its own account for a period of 5 years, has been transferred to a certain M. Drouin, of an engineering firm in France, for an annual sum, payable to the "Compagnie Ottomane," of 600,000 fr., and the line is now under the management of a company styled "Compagnie d'Exploitation." The financial position of the "Compagnie Ottomane" at the present moment may, therefore, be roughly stated thus—

Description.	Amount.	
	Francs.	Francs.
CAPITAL.		
Obligations	9,000,000	
Shares	4,000,000	
Amount of lease to "Compagnie d'Exploitation"	600,000	
		13,600,000
LIABILITIES.		
Purchase of concession	1,600,000	
Cost of construction of line	10,000,000	
		11,600,000
Balance	..	2,600,000

As to the prospects of the successful working of the line by the "Compagnie d'Exploitation" they are as follows:—

Description.	Amount.	
	Francs.	Francs.
Annual amount of lease payable to Compagnie Ottomane	600,000	
Annual expense of working line calculated at 800 fr. per kilom. per month	835,200	
		1,435,200
Or a daily expense of	..	3,932
Present daily receipts—		
Passengers	1,110	
Traffic	2,220	
		3,330
Deficit	..	602

Receipts and expenses of "Compagnie d'Exploitation."

The actual expenses, however, of working the line probably amount to much less than the estimated sum, particularly as the company who constructed the line are obliged to maintain it in perfect working order until April 1, 1893, and consequently the "Compagnie d'Exploitation" have a fair chance of reaping a profit as traffic increases.

The company are now engaged, I understand, in trying to obtain further concessions for extending the line. They have already the power, it seems, to make branch lines from Ramleh or Jaffa to Nablous, and to Gaza via Ascalon; but their intention is, it is stated, to prolong the line to El-Arish, and then possibly to form a junction with the Egyptian railways. Other projects for extending the line are also being discussed, but the most important of these is a scheme for constructing a line from El-Arish to Akaba. If this is true a rival line to that from Alexandria to Suez would appear to be in contemplation, and consequently a second route to India, running along the east side of the Suez Canal, seems to be the object in view.

Projects to extend line.

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*Presented to both Houses of Parliament by Command of Her Majesty,
AUGUST, 1893.*

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TURKEY.

JERUSALEM.

Consul Dickson to the Earl of Rosebery.

My Lord,

Jerusalem, July 17, 1893.

I HAVE the honour to transmit herewith a Translation of a Report drawn up by Mr. G. Franghia, the local Government Engineer, on the proposed scheme for irrigating the orange gardens and plains of Jaffa by utilising the water of the River Audja, which flows into the sea a few miles to the north of Jaffa.

This scheme was referred to in the trade reports (Annual Series) furnished by this Consulate for the years 1889-91, and may prove of interest at the present time when Jaffa oranges are finding a place in the European market.

A concession, it is stated, for carrying out the works has already been granted by the Porte to a certain Philippe Effendi Melhemé at Constantinople.

I have, &c.

(Signed) JOHN DICKSON.

Report on the Jaffa Plains and Orange Gardens Irrigation Scheme.

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Introductory Statement.

Jaffa, the chief town of the Caza of that name, owes its importance to its climate, which is extremely favourable for orange growing. As a natural consequence, this seaport is surrounded on the land side by orange groves, covering an area of some 720 hectares (about 1,780 acres). Jaffa oranges, thanks to their excellent flavour, have of late years acquired a world-wide reputation, and while some 18 years ago this fruit was known only to Beyrout, Alexandria, and Constantinople, enormous quantities of it are now exported to Europe, America, and even to India, and its cultivation has consequently increased to a very considerable extent. A special feature of Jaffa oranges is that they will keep from 30 days to 40 days, and, if properly packed, for 2 months and even 3 months. New orange groves are continually being laid out, and now number some 400 against 200 some 15 years ago. This again has influenced the population of Jaffa, which now contains 42,000 inhabitants against 15,000 inhabitants some 12 years ago.

The revenues have doubled, and the vicinity of the custom-house is crowded with piles of cases of oranges, waiting shipment to all parts of the world.

The Imperial Ottoman Government, with a view to encourage the export of oranges, levies an export duty of only 1 per cent. on them, and the exports for the last few years have averaged 36,000 boxes per annum.

Owing principally to the trade in oranges, Jaffa now ranks next after Beyrout in importance among Syrian coast towns.

Present System of Orange Growing and Irrigation.

Orange growing in Syria is conducted exclusively by natives. Each orange garden contains some 2,000 square feet of planted area, equal to about 1,300 trees to the hectare (= 2·471143 acres). The trees begin to bear the fourth year after planting, but it is estimated that it takes 7 years, and sometimes 8 years, before an orange orchard yields a remunerative crop. During all this time, and even afterwards, the orchards have to be watered continually, and this irrigation is the most difficult and the most laborious part of the work in connection with orange growing, inasmuch as the water has to be drawn by means of more or less primitive water-wheels from wells dug in the gardens 90 feet and even sometimes 100 feet deep.

Pumping by horse-power has been tried in many instances, and in some rare cases by steam, but has failed to give satisfaction. On the "Jewish Alliance" farm an artesian well has been tried, but had to be abandoned after 3 years spent in fruitless endeavours to strike water, although a depth of 700 feet had been reached and some 2,400*l.* had been spent in the attempt.

There is seldom over one "noriah" (water-wheel) to a garden, therefore the number of water-wheels may be taken at

450 to the 400 orchards, allowing for some 30 wells worked by two "noriahs." The wells are circular, the single wheel ones 20 feet in diameter, and the double wheel ones about 26 feet, and are sunk in the sandy soil, or have to be sunk down to the rocky stratum before water can be found.

That part of the wells which go through the sandy soil has to be faced with masonry during the process of sinking. The raising capacity of a "noriah" or water-wheel worked by three or four horses, is from 90 cubic metres to 95 cubic metres per 24 hours, but varies according to the depth of the well. The water thus drawn is stored in reservoirs of 120 cubic metres capacity, whence in the morning or evening, as the case may be, it is allowed to flow through the little irrigation channels which lead to the trees. This watering of the orchards begins on May 1 and is carried on till November 1.

The present system of irrigation is not one to be commended and another and more improved one would be most advantageous both as regards the already existing orchards, and those which may be laid out in the future, as may be ascertained from the annexed table, giving the outlay on an orange orchard and the cost of its maintenance. It is a most astonishing fact that the cost of irrigation alone represents from 45 per cent. to 47 per cent. of the first years' outlay, and during the second year it only forms from 40 per cent. to 42 per cent. of the working expenses, and it will be seen that, including interest on the outlay in planting, the cost of irrigation for the second year averages 1,869 frs. per annum, or 41 per cent. of the years' working expenses:—

Expenses of
an orchard
first two
years.

Table I.—FIRST YEAR.

Description.	Maximum.		Minimum.	
	Francs.	Francs.	Francs.	Francs.
A. LAYING-OUT AND PLANTING.				
Purchase of land	7,000		6,000	
" and planting 2,000 trees				
at 2 fra.	4,000		2,000	
Clearing and digging	1,400		1,200	
Second clearing and digging ..	600		400	
Manure	600		500	
Gardener	800		700	
		14,400		10,800
B. IRRIGATION.				
Well, reservoir, and wheel ..	9,000		7,000	
Purchase of three mules	2,000		1,900	
Food for mules	800		600	
		11,800		9,500
Total for first year ..		26,200		20,300

SECOND and Following Years.

Description.	Maximum.		Minimum.	
	Francs.	Francs.	Francs.	Francs.
A. COST OF PLANTING.				
Digging and clearing	600		500	
Gardener	800		700	
Manure	400		200	
Interest on first years' outlay at 8 per cent.	1,152		880	
		2,952		2,380
B. IRRIGATION.				
Keeping "noriahs" in repair ..	200		100	
Food for mules	800		600	
Depreciation of mules (wear and tear, &c.)	300		150	
Interest on first years' irrigation expenditures at 8 per cent. ..	844		744	
		2,144		1,594
Total for following years		5,096		3,974

A study of the foregoing tables renders it clearly evident that an improved and cheaper system of irrigation is of paramount importance, indeed, the need of such a system has been much felt and recognised for more than 10 years now, as it would certainly tend to the extensive and fertile plains round Jaffa becoming, in a short space of time, transferred into extensive orange groves, would cheapen the production of oranges, and would enable the growers and exporters to compete with, and supplant, the oranges of other countries in the European markets.

It is as well to state that the idea prevailing among certain orange growers that increase in the number of orchards would only be attended by a corresponding falling off in the net profits, is utterly erroneous, inasmuch as, taking everything into consideration, the present price of oranges is double what it was 10 years ago, and the number of orchards at Jaffa was far smaller than is the case now; in 1880, oranges sold at 27 frs. to 30 frs. per 1,500, while at the present time the prices range from 45 frs. to 50 frs. and even 60 frs. The cheaper price alluded to above, far from affecting the orange grower's balance sheet on the wrong side, would, owing to much better and cheaper irrigation, enable him to sell his fruit also at lower prices, and make the same good profits, if not better, than he does now.

Quantity of Water Required, and Surface and Nature of the Soil to be Irrigated.

It will be seen from the preceding pages that it is only intended to deal with orange crops; it is true, though, that on the different European farms around Jaffa the present scheme will be utilised for other crops as well, and there is every probability that the water-supply scheme will be availed of by mills and works (which will be dealt with further on); and that the town of Jaffa will resort to and rely upon it for its water supply.

The quantity of water at present required for irrigating the Jaffa orange orchards may be correctly and easily computed from the capacity of the reservoirs in which the water drawn up from the wells by the "noriahs" is stored, and is three-quarters of the quantity, as the reservoirs are never filled to their full capacity, which is 7 metres length, 7 metres breadth, and 2 metres 50 centims. depth, equal to 122·50 cubic metres, or 92 cubic metres to the hectare, in the 24 hours, which gives 41,400 cubic metres of water in the 24 hours for 450 orchards.

It may be safely stated that three times the above quantity of water would suffice for treble the present number of gardens, but it may be also as safely stated that once the waterworks are completed all that part of the country lying between the supply source, the village of Yazoor, and the town of Jaffa, will be covered with orange orchards, and that 41,000 cubic metres, though trebled, will be found inadequate for the requirements of the country in 5 years, or, at the utmost, 10 years time. Already, without the aid of the advantages to be derived from the present scheme, several new orchards are being laid out close to the villages of Yazoor and the "Jewish Alliance."

The Netter farming station, as well as the Mulabbis one, are fast, and at very considerable expense, transforming these fertile but dry plains into magnificent and luxurious plantations; besides, there is plenty of arable land here and to spare, inasmuch as the land capable of irrigation is 12 times and 15 times greater in extent than the land already under irrigation by primitive methods. It will not be necessary, therefore, to deal with the number of acres to be irrigated, nor with the kind of crops. It is simply necessary to state that the irrigation of 1,350 orchards would have to be guaranteed instead of 450 existing at the present time, which, at the rate of 92,000 litres (20,248 gallons) of water per day, would require a regular water supply from a source capable of supplying 1·43 metre per second or 14·30 litres.

The Waters of the River El-Audja and the Country between its Source and the Town of Jaffa.

The El-Audja flows some 8 kiloms. to the north of the town of Jaffa, and is a stream only some 25 kiloms. long, but capable of supplying 10,000 kilos. per second, owing to the abundance of

water at its source at the foot of the mountains of Judea on the western sides; the river, consequently, never dries up, but flows steadily at a fixed level, except in the case of the melting of the mountain snows or of unusually heavy rains. As regards its quality, Audja water is very wholesome, and has always been used, as now, for drinking and for cooking purposes, and might safely be used for the domestic water supply of the town, especially as it might be brought to Jaffa in a covered aqueduct and supplied clear and pure.

An open conduit or canal would certainly be a cheaper mode of bringing water to the town, but would, at the same time, have its disadvantages, as impurities would find their way into it, and besides a simple channel rarely ensures a sufficient flow of water, and generally has to be faced to obviate the growth of plants, corrosion, washing away of the banks, and loss of water from infiltration; this would cost almost as much as a covered aqueduct, which is far more preferable when water has to be conveyed through a hot country, and to be used for domestic as well as for other purposes. The aqueduct will be carried over a level country, which offers no serious engineering difficulty, and will rest on the lower part of the hillocks forming spurs of the Judea range, which will support the aqueduct at a suitable level for the distribution of water required for the irrigation of lands lying between its source and the town of Jaffa.

Course to be followed by the Aqueduct.

It is not necessary to deal at length and minutely here with the course to be followed by the aqueduct. It will suffice if it is stated that owing to the favourable configuration of the country to be traversed, the conduit may be laid either along the sides of the hills, as already mentioned, from Salameh village to Mulabbis and Fejja villages, or may be conveyed on arches. This latter mode would shorten the distance to be traversed without, at the same time, entailing additional expense in the construction. Without going into details, which appertain only to a surveyor's report, it must be stated that the water from the aqueduct will have to be carried across the River Mousrarah in pipes. This latter stream is a tributary of the Audja, and flows at the back of the Jaffa Gardens. These pipes need only to be large enough for the supply of 600 litres of water per second, a quantity quite sufficient for the irrigation of the gardens beyond this small stream. Other branch conduits will convey the water according as requirements arise to more distant places, such as the Rothschild, and the Rishon, and other farming colonies.

Levelling.

The sources of the river are on the hillside at an elevation of 25·50 metres, and taking the length of the main supply conduit

at 18 kiloms., the supply reservoirs might be constructed on the hillside at an elevation of 16·50 metres, and close to the village of Salameh, near the Jaffa Gardens. The incline would be 50 centims. in the kilometre. From the reservoir the water would be conveyed in canals, pipes (under pressure) or syphons to the auxiliary or branch reservoir constructed in the immediate vicinity of the lands to be irrigated. A detailed survey would show whether it would be necessary to force a small quantity of water to a higher level by utilising the fall of the water destined for the irrigation of lower ground, inasmuch as most of the Jaffa Gardens are 10 metres, and a few are at an elevation of more than 15 or 16 metres.

Estimated Cost.

In a preliminary report like the present one it is both impossible and unnecessary to deal at length with the various items of the cost of construction, but the totals given and which are based on particulars which will follow in another report will give a sufficiently correct idea of the estimated cost.

The course of the aqueduct has been traced and calculated from the "Palestine Exploration Fund" map (scale 0·036 metre to the kilometre), on which the distances are marked with great accuracy. In a flat country like Palestine the determination of levels by barometer cannot be relied upon, and have, therefore, to be obtained in a concise manner by the aid of the theodolite. The prices given have been calculated for an aqueduct capable of supplying 1,900 litres per second. This aqueduct would be a circular one, a form which is the most advantageous of all, and which has been generally adopted. The thickness of the concrete has been taken as 28 centims., with an inside diameter of 1·80 metres. In all cases provision has been made for ordinary masonry only. The reservoirs and discharge gates, &c., and land to be acquired are estimated by the length of aqueduct in kilometres at 7,500 fr. per kilometre. As regards the branch aqueducts and syphons, and their subsidiary channels for the conveyance of water to the various estates, these have been estimated to cost 120 fr. per irrigated and irrigable hectare, taking as irrigable lands areas twice the size of the lands already under irrigation, *i.e.*, 2,160 hectares—three times the area of the Jaffa Gardens. A sum amounting to nearly 10 per cent. of the total cost has been added to meet any unforeseen expense which may be likely to arise, to provide for indemnities to "mulk" owners, and for general expenses.

The above are all set forth in the following table of the cost of construction:—

TABLE of the Cost of Construction.

Description.			Price.	Totals.
			Francia.	Francia.
Main aqueduct conduit ..	Per metre..	17,000	90	1,530,000
Accessories to conduit ..	Per kilom...	17	7,500	127,500
Branch ducts and channels for conveying water to the orchards	Per hectare	2,160	120	259,200
Total	..	..	..	1,916,700
Nearly 10 per cent. on total to be added ..	..	..	..	193,300
Total cost of construction	..	..	..	2,110,000

Price of Water and Gross Revenue of Irrigation Works.

From the preceding statement it will be seen that the water obtained from the wells by the present system of drawing by water-wheels costs, with interest on the initial outlay, from 1,600 fr. to 2,144 fr. during the first year, and from 850 fr. to 1,300 fr., if the interest be not taken into account, and that for 16,560 cubic metres; per diem, equal to 12 c. per cubic metre of water. The company about to be formed will be obliged to supply the same quantity of water in the same space of time, and this quantity will be available throughout the year, *i.e.*, $92 \times 360 = 33,120$ cubic metres per annum. This allows the company a large margin, inasmuch as during the six winter months the water can be utilised for the plantations, for works to be constructed, such as saw-mills, &c.; and this item guarantees an extra profit to the company. At this rate the company could afford to supply water at 600 fr. per annum to each single "noriah" garden, such as those at present in existence, which for 400 simple "noriah" gardens (instead of 450) at 600 fr. = 240,000 fr.

As regards the orchards being laid out and those to follow in process of time, a higher rate ought to be charged for the supply of irrigation water, and would be gladly paid by the planters, inasmuch as with an irrigation system, such as here proposed, the initial cost of laying out an orchard would be reduced by 50 per cent., and would be simply confined to the purchase of land, clearing, and planting, and the annual charge made by the water-works company, without being encumbered with the costly process of sinking wells and constructing and working the primitive and only partially efficient "noriahs."

Supposing that only 400 new orchards are laid out, by the time 2 years have elapsed after the construction of the water-works, say 4 or 5 years hence, and taking the price of water supplied at 800 fr. per annum, instead of from 1,600 fr. to

2,144 fr., given in Table I., the 400 orchards at 800 fr. = 320,000 fr.

NOTE.—Over 50 new orchards are now being laid out under the “noriah” irrigation system.

The new scheme will require 2 years to be set in working order, which, with two more to follow, makes 4 years, in which time the 400 orchards already mentioned will most certainly increase in number. The charges for the supply of water have only been set forth roughly for a fixed quantity, say 33,120 cubic metres to the orchard, and have, if anything, been under-estimated, so as to be considerably under the Jaffa scale.

As regards the surplus water supply, which is estimated at 18,216,000 cubic metres, and which may be utilised for other purposes and for the town of Jaffa, which latter is very scantily supplied at present, the modest price of 2 c. per cubic metre is sure to prove alluring. On the other hand, the area of irrigated and irrigable land is so extensive that all the waters of the Audja will still be inadequate to meet irrigation requirements were all the available land under cultivation; consequently an efficient irrigation scheme is sure to prove remunerative to promoters and shareholders alike.

A recapitulation of the three sums afore-mentioned gives 924,320 fr. gross revenue, *i.e.*—

Description.	Amount.
	Francs.
400 orchards already existing, at 600 fr. per annum	240,000
400 new orchards at 800 fr.	320,000
Charges for 18,216,000 cubic metres per annum at 2 c.	364,320
Gross revenue total	924,320*

* Or 900,000 fr. (\$6,000L.) in round figures.

Working Expenses and Cost of Maintenance.

These are estimated to average 18 fr. a litre in summer and 35 fr. in winter—

Description.	Amount.
	Francs.
Therefore 851 litres of water for the orchards, plus half the surplus water, or 289·50 litres destined for other purposes in the summer months, total 1,140·50 litres at 22 fr. instead of 18 fr.	25,091
Balance of surplus water in winter months 289·50 litres, at 40 fr. instead of 35 fr.	11,580
Unforeseen expenses and balance in round numbers	9,329
Total working expenses and cost of maintenance..	46,000

NET Income from Irrigation.

	Amount.
	Francs.
As already stated, the primary outlay amounts to	2,110,000
If to this sum, already estimated, another 20 per cent. be added for payment of interest ad interim and cost of issue of shares, &c.	422,000
The total expenses amount to	2,532,000

	Amount.
	Francs.
The gross income from all sources, according to this table, is ..	900,000
From which working expenses and cost of maintenance have to be deducted	46,000
Which leave a net income of	854,000

Therefore, 2,532,000 fr. yields a net profit of 854,000 fr., or
about 33 per cent.

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254.	<i>Russia</i> .—Report on Russian Agriculture and the Failure of the Harvest in 1891	3d.
255.	<i>Guatemala</i> .—Report on the Coffee Industry of Guatemala	1½d.

UNITED STATES.

CHICAGO.

Consul J. Hayes Sadler (on leave) to the Earl of Rosebery.

My Lord, *South Kensington, September 1, 1892.*

I HAVE the honour to transmit herewith a Report on the Progress Made in the Work and Preparation for the World's Columbian Exposition to be held at Chicago in 1893. I also enclose some of the latest photographs taken of the different buildings in course of construction.*

I have, &c.

(Signed) J. HAYES SADLER.

Report on the Progress Made in the Work and Preparation for the World's Columbian Exposition to be held at Chicago in 1893.

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Appearance of the Grounds.

Now that the principal constructions of the World's Columbian Exposition approach completion, the exterior of nearly all being finished, while the grounds around them are already in a great measure laid out, it is possible to form a general idea of the effect which will be presented when the Exhibition opens to the public on May 1 next year. The beauty of the scene can scarcely

* Forwarded to Royal Commission for the Chicago Exhibition.

be exaggerated, and when the object and size of the immense buildings, which are all of classical design, with the vast extent of ground they occupy, are considered, it is difficult to imagine a more perfect arrangement than has been planned. A peculiar feature is the harmony which unites the various buildings, designed by different architects, into one artistic panorama, and to this the site on the borders of Lake Michigan lends a natural perfection. Lagoons and canals everywhere intersect the grounds and the irregularity of outline of these water spaces, and of the wooded island in their midst, contrasts charmingly with the long straight lines of architecture which are thus thrown with somewhat irregular disposition. The effort so successfully carried out will undoubtedly exercise a powerful influence on artistic feeling in the country, and even were no exhibits of matured excellence to be seen within, the buildings cannot fail to stimulate the development of taste and guide towards perfection in art in the New World. The main object of the Exhibition is far more material, but to this nothing will be lost by added charm of artistic beauty and grandeur. The extent of the grounds and size of the buildings have been described in a previous report; some idea of the vastness of the undertaking may be formed by comparison with the Exhibitions of Paris in 1889 and of Philadelphia in 1876 as follows:—

		Paris.	Centennial.	Chicago.
Area of grounds ..	Acres ..	238	284.49	633
„ buildings ..	„ ..	75.5	70.08	142.12
Cost of „ ..	Sterling £	720,752	1,037,966	1,457,206

The approximate exhibit space at Philadelphia was 4,323,330 square feet, and at Chicago it is estimated at 9,138,888 square feet.

Progress in Construction.

The work of construction progressed satisfactorily during the early part of the year, there having been few days when operations were checked by severe weather, but it was much retarded by heavy rains in May and June. The rainfall in June was 10.58 inches, and work was interrupted for 18 out of 30 days, foundations were flooded, and the underground work of laying pipes suspended, while some slight damage was done by severe storms of wind. When possible the full force of 7,000 men was employed, but not so much work was accomplished during those two months as had been counted on, and at the end of June the two great buildings, the Manufactures and Liberal Arts and the Mines and Mining, presented a very unfinished appearance. In July, however, on a change of weather, extra hands were put on,

and such progress was made that no fear is now entertained but that these buildings also will be completed in time for the dedication on October 21.

The condition of the principal buildings at the end of July was as follows:—

In the Administration Building the construction is complete and all staff work placed. The dome framework is erected and covered in, but gilding and decoration has not yet commenced. The statues are being cast for the interior, many for the exterior being finished though not yet in place.

The Mines and Mining Building is complete, but it will probably receive another coat of colouring.

The Electricity Building is finished as far as ironwork and wood-work are concerned. The staff on the north and east sides is placed, and on part of the west side.

The main part of the Transportation Building is practically complete, but the Annex has yet to be built.

The Horticultural Building is entirely finished, with the exception of some of the sculptured groups to be placed outside.

In the Women's Building little remains to be done but interior decoration. The outside sculpture work on the pediment is progressing.

In the Fisheries Building the imitation Spanish tile roofing is all in place; the concrete work of the aquarial tanks and fountain is nearly finished. The ornamental staff work outside and on the north and south entrance loggias is all complete.

In the Art Gallery the iron contractors have finished their work on the dome; nearly all the masonry work is done, and nearly all work on the building completed. Plain and ornamental staff on the north side and entrance on the east end is placed, and three-quarters of the ornamental and half of the plain staff placed on the south side and entrance.

In the Manufactures and Liberal Arts Building all the large trusses are up, and the diagonal and smaller trusses placed on the south end. The traveller will shortly be moved to put up smaller trusses on the north side. Skylights in the wood-covering are in course of placing; where there is no skylight the wood will be covered with canvas. The side trusses are placed on the west and east and partly on the south sides, and the roofing of the naves is erected. The staff is placed on the north-east and north-west pavilions, wood and staff work progressing in other parts. The amount of steel work erected to end of July was 9,539,000 lbs. out of 12,000,000 lbs. required; lumber, 13,784,288 feet, out of a total required of 17,000,000 feet. The central hall of this building is 1,280 feet by 380 feet; a nave 107 feet wide runs round the whole building, and the entire length of the building, with the strip running between the central hall and the nave, is 1,687 feet, and the width 787 feet. The highest part of the dome is 245 feet. There are 4,000,000 feet of lumber in the foundation, not including the piles, and 3,000,000 feet (200

car loads) in the floor. It is three times the area of St. Peter's at Rome, and four times as large as the Colosseum.

The
Machinery
Hall.

In the Machinery Hall the iron work on main building is complete, except the central dome. Carpenters are sheathing the east end and working on the roof. All the staff work is placed on the north side of Annex, and three-quarters of the ornamental staff placed on the west end. Groups of statuary for the outside of main building are being made, and some figures are in position on ridge line of roof.

The Forestry Building is roofed and nearly finished. The rustic colonnade is almost completed, and the rustic trimmings are all in place on both interior and exterior of window and door frames. Split oak shingles are now being placed on the roof.

The main Agricultural Hall is done except interior trim and placing statuary. Some statues have already been placed and decorative fresco work started in the loggias. The roof joists of the Annex have been set, structure entirely sheathed in and staff work advancing; canvas and metal roofing finished.

The Dairy Building is wholly finished.

With the exception of manufactures and machinery all the above buildings are roofed and windows glazed, and comparatively little remains to be done but interior decoration. All will be coloured with a light tint of old ivory or cream varying somewhat in the different constructions; the tinting, which is finished on some of the buildings, is effected by means of a liquid spray, composed chiefly of oil and colouring matter. The statues are moulded of staff (on a light framework of wood), the same material as is used for covering the outside of all the buildings.

The
Government
Building.

The central dome of the Government Building is sheathed in and the corrugated iron covering is being placed. All the building is covered with staff and practically finished, except interior trim. The estimated cost with the Annexes for the army and weather bureaux is 78,577*l.*, and the whole expenditure contemplated by the Government is 300,000*l.*

State
buildings.

The Illinois State Building is an imposing structure. Rough work is all done except on the dome, the plastering of the exterior nearly finished, exterior covering being placed on all sides of the building. There are 22 other State buildings in course of construction, some of them being far advanced, namely, Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, Delaware, Maryland, Michigan, Wisconsin, Indiana, Ohio, Colorado, California, Nebraska, Kansas, Iowa, Missouri, West Virginia, Minnesota, and Montana. These are all grouped at the northern end of the park on the separate ground allotted them, and are of great variety of design; many are important buildings, and will present a charming effect.

Foreign
buildings.

The following foreign countries will erect buildings:—Great Britain, Canada, Ceylon, Germany, Japan, Argentine Republic, Austria, Brazil, Costa Rica, Colombia, Chile, Ecuador, France, Guatemala, Hayti, Mexico, Nicaragua, Norway, Sweden, and the

Hawaiian Islands, also the State of Rio, Brazil. Others may yet decide to do so.

The British Building was the earliest foreign construction commenced, the first pile having been driven three months since on the small but beautiful site allotted on the shore of Lake Michigan to the north-west of the United States Building. The walls are constructed to the first floor and flooring laid, but otherwise not much progress has been made, work having been delayed owing to non-arrival of detailed plans, and from delay in delivery of material. Plans for the German, Ceylon, and Swedish Buildings have been accepted and ground allotted. The Ceylon construction will be in the form of a Ceylonese Court; the Swedish Building, of the old Swedish Cathedral style, is to be constructed entirely in Sweden and shipped in sections, and will cover 12,000 square feet.

Allotments and Exhibits.

No detailed statement of the allotments which have been made can be given, but applications have been received for more than five times the amount of space at the disposal of the directors, who are engaged in making arrangements to provide room for only the most desirable exhibits. The allotments to foreign Governments have all been completed, except those to Italy, Switzerland, and the Netherlands, which countries have recently appointed official Commissions, and endeavours are being made to satisfy their demands. All the space has been allotted in the Manufactures and Liberal Arts Building, and no further space being available the direction have recently given to Spain a small portion reserved for United States exhibits, with a view to accommodate that country to which no space had been allotted. Among the allotments in the Fine Arts Building 24,324 square feet hanging space have been reserved for America, 21,325 square feet allotted to England, 2,895 square feet to Canada, 29,201 square feet to France, and 20,340 square feet to Germany. A special piece of ground has been granted to the Krupp Gun Company for the erection, at their expense, of a building to contain the 120-ton gun, the largest ever built, and other ordnance.

The enormous demand for space, so many times greater than these gigantic buildings can accommodate, demonstrates the enthusiasm reported to exist not only in America but in almost every foreign country with regard to the Exhibition, and preparations on a large scale seem everywhere to be progressing, so that each country may be as well or better represented than on any former occasion.

To enumerate the nature and variety of foreign exhibits promised would be impossible, but there are indications in many instances of a desire to outstrip former efforts, as well as other countries, in the character and completeness of display, and it has been found impossible to meet additional demands for space

which have been made since the importance of the Exhibition has been recognised. There are some foreign countries, especially the Central and South American Republics, which have never been represented in the manner they will be at the Chicago Exhibition.

Foreign exhibitors are permitted to fix upon placards attached to their exhibits the price at which these will be sold at the place of manufacture, or in and out of bond, exclusive or inclusive of the customs duties of the United States. All exhibits will be admitted free of duty, but must pay duty if they are sold or remain in the country. Such articles also as may be imported solely for exhibition which may be consumed or destroyed in their application to the process they are intended to illustrate will be admitted free, and satisfactory evidence of such consumption or destruction will be accepted at the close of the exhibition as authority for closing the customs accounts of the respective articles. No citizen of any other country will be held liable for the infringement of any patent granted by the United States or of any trade mark or label registered in the United States, where the act complained of shall be performed in connection with the exhibit of any article or thing at the World's Columbian Exposition.

The collector of customs has already taken possession of the bonded warehouses, which are finished, and such exhibits as have come to hand are now deposited there, while all fresh arrivals will be delivered on the grounds. The terminal charges on exhibits sent to the World's Fair are reduced from 4*d.* to 3*d.* per 100 lbs., which must be paid both ways.

With regard to American exhibits and inventions there will be a great deal to see. This continent has been but imperfectly represented at European exhibitions, and yet nowhere have greater advances been made in all branches of manufacture and trade, in labour-saving machinery and appliances, in science and invention. The show of machinery, minerals, manufactures, transportation, and agricultural produce promises to be very extensive and complete; exhibits from some of the States have already arrived, and selection has been found necessary from want of space to meet all demands. In the Transportation Building will be concentrated every description of means of locomotion by land or water, locomotives, fully equipped trains, marine appliances, equipments, naval armaments and models of ships from leading builders and companies, besides models of lighthouses, bridge and harbour works, lifeboats, steam and electric launches, bicycles, &c. The Forestry Building is surrounded by a colonnade composed of timber from all the States of the Union; the pillars are in groups of three, the centre one of 20 inches diameter flanked on each side by a column of 12 inches in diameter, and all the hard woods of the country are represented. The Women's Building promises an interest peculiar to this Exhibition, and will contain all the finest efforts of the industry and talent of the sex; the line of separation, however, to be drawn between the women's works to

be exhibited in this building and those to be exhibited with men's work in the different exhibition building appears less clear. The project of providing a Children's Home associated with this building for the purpose of relieving tired mothers is fairly launched, and a building will be erected by subscription to be furnished with play rooms, children's books, and scientific toys, under the superintendence of kindergarten teachers. A Women's Dormitory Association has also been formed with a view to provide women who visit the fair with proper accommodation at reasonable rates. The Horticultural Show promises to be not only bewildering in extent but the most complete ever made or attempted, and will form an important feature of the Exhibition in a scientific point of view, as well as in the adornment of the grounds. The building, which is finished and has been in use for some months, is 998 feet long by 250 feet wide, and the display will include fruit and all that pertains to horticulture. In the southern portion will be the Viticultural exhibits, in the rear curtains the exhibits of Fruit from all parts of the world, and where it is not possible to show the natural fruit even with the means of refrigerators and cold storage, perfect wax models will be displayed. The Floricultural exhibits will be distributed, and, so as to allow for recovery from the check of transplanting, 50,000 plants and shrubs are already growing in the grounds. In the front curtains will be hothouse and greenhouse plants, and among these a magnificent show of orchids, of which it is said there will be 2,000 different varieties. There will be every description of tropical vegetation, with orange groves and other trees in full bearing, and the plan of growing plants by electric light and with the aid of electric currents will be exemplified. There will also be collections of insects, beneficial or injurious to the fruits of horticulture. In long lines of greenhouses to the rear of the building plants will be brought to perfection or stowed away. Six acres in front of the main building besides spaces round many other constructions will be devoted to Floricultural exhibits; the wooded island, which covers 15 acres, is being laid out with beds of shrubs and flowers, divided by winding walks; at the north end of the island will be a Japanese temple surrounded by choice plants from that country. The amount of space asked for here by the States, particularly California, and by foreign countries has been far beyond the power of allotment, and some displays will be extended to the Midway Plaisance.

As the enterprise develops the more convincing it appears that the Chicago Exhibition of 1893 will be by far the most extensive and important which has yet taken place. The effect on the avenues of trade will probably be wide and far spreading. Considerable changes and diversions may result, new connections will be made and old ones lost. Commerce does not stand still nowadays, nor is trade in these times of great competition won or retained without continued exertion, and however greatly this exhibition may benefit manufacturing and commercial enterprises in the United States, it undeniably offers the best possible Advantage to exhibitors.

opportunity for advertising, by means of exhibits, to the manufacturers of other countries. The yield out West is large and there European goods are not widely seen or known, and, at all events, only obtainable at the prices fixed by the American importer, and the liberty, therefore, conceded of affixing on exhibits their cost in and out of bond will be of great advantage in attracting customers; the fear that methods may be copied seems scarcely to warrant abstention or weigh against the advantage of such advertisement, for there are few inventions unknown here or otherwise unobtainable. Rapid changes are taking place in this country, and manufacture is constantly tending to migrate where circumstances are the most favourable and material nearest at hand; formerly the East supplied the West; the East is now greatly furnished with manufactures of wood and iron, furniture, and other trade goods from the factories of Chicago and district; agencies in the East now exist for the shipment and export of many goods manufactured in the West, where but a very few years ago the agency was in the West for the Eastern manufacturing firm. This is a migratory age; communications and transit become yearly more rapid, economic changes more frequent, and the influence of advertisement more extended.

The Exhibition will probably be visited less, proportionately, by pleasure seekers than were former exhibitions, and more by persons interested in the various exhibits. Foreign visitors will be almost entirely those who come with the special view of profiting by and interesting themselves in the goods exhibited, while as regards the United States there are practically no pleasure-seekers here, all men being workers and personally and actively engaged in the different businesses of life. Of these vast numbers will come from all parts of the country, bent on taking advantage of every new channel of trade, eager to obtain the best return for capital, and in search of the most perfect methods of diminishing the cost of product and encouraging labour. The whole nation is occupied in business, and the result has been the accumulation of immense wealth which is less hampered by consequent expenses here than elsewhere. This available wealth is yearly increasing, and so is the disposition to purchase articles of value, the artistic productions and finer works of older countries, and collections or specimens of historic pre-eminence. A love of the beautiful and an appreciation of art is fast growing up, and while the keen business of amassing riches is never lost sight of, the desire to fill their public institutions and private residences with works of art and the product of genius shows a marked advance. Thus, to the foreign exhibitor greater advantage is probably offered by exhibiting at Chicago, where enterprise and wealth have made such strides, and which city is not only the rising business centre, as it is now the centre of the population, of the United States, than could perhaps be offered at an exhibition in any other locality.

Other Works and Arrangements.

Besides the principal constructions mentioned above there are many other buildings and works within the park which will, it is said, be all completed by the time fixed for the dedication. A water station is established for supplying the grounds and buildings and for fire purposes, and the most approved drainage system has been established; about nine-tenths of the water and drainage pipes are laid. An electric lighting establishment has been completed, and about two-thirds of the work done for the incandescent lights. The contract for the installation of 92,000 lamps was taken at 79,800*l.*, and arc lights have been contracted for at 21,000*l.*, the subways, rubber-covering, and power costing an additional 14,575*l.* The Music Hall, Casino, and Peristyle, which will cost 57,311*l.*, are well in hand, and the big pier contracted for will be finished by October 15. The columns and trusses of the Casino are in place, and the columns of the Peristyle as far as the opening connecting the outer harbour and the basin. The foundation piles for the statue of America to be placed in the lagoon opposite the Administration Building are driven, and the framework for the big statue of the Republic has been started. All the grading and planting in the grounds have been finished, and a large force of men is engaged in laying the walks and building the roads, which are not yet finished. Dredging the lagoons and harbour at a cost of 21,900*l.* is nearly finished. The statue of Columbus is well in hand, at a cost of 8,000*l.*, and the grand fountain, contracted for at a price of 11,200*l.*, will be immediately commenced. The permanent bridges and the railing of the waterways are complete, and all other works are well in hand.

The movable platform has been condemned, and an intramural elevated railway, with stations every 1,000 yards, will be constructed for the purpose of conveying visitors from one part to another of the extensive grounds covered by the various buildings; the cars will be moved by electric traction on the trolley system with the wires between the rails. It is said the capacity will be 20,000 persons per hour, and passengers will be able to alight at any part or to make the entire tour of the grounds. Steam and electric launches have been tested, which will ply on the waters of the park between different landing places; express boats will take visitors round the waters, and omnibus or cab-boats can be engaged to go from one part to another.

An appropriation of 35,000*l.* has been made for an orchestra of 120 performers during the time the Exhibition is open. Arrangements are being made for a variety of other choral, orchestral, and international musical entertainments, and there will be a Recital Hall, Music Hall, and a Festival Hall for 2,000 singers and an audience of 7,000. There will be postal, telegraphic, telephonic, express, and other facilities on the spot. Physicians will be attached to the medical bureau of the exhibition, where persons falling sick or requiring medicines will be attended, but

no drug stores will be allowed. About 150 restaurants will be situated in the principal buildings and in the grounds; in the Manufactures and Liberal Arts Building there will be 16 large cafés and 72 private dining rooms; lunch counters in the Transportation Building, and fish lunches in the Fisheries Building; liquor will be allowed to be sold, but no bars or saloons will be permitted.

The World's Auxiliary Congress promises to form a very important feature of the Exhibition, and foreign Governments have been invited to participate and render co-operation. The work has been organised in 16 departments, and more than 100 general divisions, in which congresses will be held; the most undoubted authorities on every branch of science and art, and representatives of leading institutions and societies from all parts of the world have been invited and are expected to attend.

With the 13 immense principal constructions, at least 100 special exhibition structures, and other works, Jackson Park will have the appearance of a city in itself; outside the Park along the Midway Plaisance will be grouped a number of other structures for which concessions are required.

Concessions.

The concessions already arranged include the Tower of Babel, 400 feet high, with a diameter at the base of 100 feet, which will stand in the centre of the Midway Plaisance; the exhibit of Irish Cottage Industries at the end nearest the Women's Building; the Bohemian Glass Company and the Libby Glass Company of Toledo, Ohio; Japanese bazaars, covering a space of about 225 feet square; the animal show of Carl Hagenbeck of Hamburg; Settlement of the South Sea Islands, including the Fijis, Samoan, Philippine, Solomon, Java, Borneo, and the Society Islands; a natatorium, 190 feet by 250 feet, and, in connection therewith, a Viennese café and bakery; panorama of the Bermese Alps; a German village, with representations of the houses of the Bavarian Mountains, of the Black Forest, the Hessian and Altenburg House and other typical German homes, including a German ethnological museum; a Turkish village, being the representation of one of the old streets of Stamboul, in connection with which are displayed the manufactures of Turkey, including Syria, also typical dances and other entertainments peculiar to the country; a minaret tower, from which will be heard daily the Muezzin call to prayer; Moorish palace, in which will be many illusions, camera obscura, &c., with a restaurant capable of seating 1,000 people, one of the great attractions of this building being an exhibit of 1,000,000 dol. in gold coins; street in Cairo, being a representation of the old Egyptian city, attached to which will also be mosques, dancing halls, and many famous curiosities; Tunisian and Algerian section, showing the typical people of North Africa, their merchandise, as well as artisans at work; Ferris wheel, a wheel 250 feet in diameter swung on an axle,

the largest steel casting ever made, resting upon towers 135 feet high, cars are hung at different points on the perimeter, to contain people who make the complete circuit of 250 feet, the weight of this entire revolving mass being 2,300 tons; ice railway, a practical winter exhibit, including a slide with an accumulation of ice thereon formed by artificial refrigeration; Pompeian House, a complete representation, including works of art; panorama of the Volcano of Kilanea; section of Morocco, similar to sections of other countries; Chinese section, including a tea house, village, and theatre; Captive Balloon, with capacity for carrying 28 people to a height of 1,500 feet; section of old Vienna, Austrian village; East-India, typical section, showing people, customs, manners, and merchandise; Dahomey village, 60 natives of both sexes, including several chiefs.

Constructions in view of the Exhibition.

The handsome city of Chicago, risen as it has in so marvellously short a time, containing now 1,500,000 inhabitants, and covering more than 180 square miles, will, with its building, parks, and boulevards so often described, constitute in itself an attraction to visitors, while the numerous new constructions which have been and are being erected in connection with and in view of the Exhibition will add much to its imposing appearance. The new Art Institute, which is now in course of erection in the heart of the city and is intended to be a permanent building, is fast rising above the ground; the foundations are complete, and the walls as far as the second floor at the northern end are already up, a large number of hands being employed; it will be finished in time for the opening in May next. Three-quarters of a mile further south on the borders of the lake the Illinois Central Railway Company are building a new passenger station, which in point of architecture, conveniences, and solidity will, it is thought, be the finest in the country, if not in the world. As in all constructions on the borders of the lake the foundations are on piles, which in this instance are driven 70 feet below the surface by a 4,000 lb. hammer till they reach the lower stratum of hard clay. The piers will be of stone on which steel columns will support the structure. The three lower stories will be of pink granite and the upper ones of Pompeian brick and terra-cotta; the tower will be 200 feet high and the area of the waiting room 150 feet by 100 feet. It will be finished by May next and will cost 200,000*l*. This railway company is raising its tracks in the neighbourhood of Jackson Park, beginning the ascent at Forty-seventh Street, on an embankment 130 feet wide at the top, which will obviate the dangers now existing of level crossings. The work will be completed by the winter. Trains run every few minutes alongside the lake to the Exhibition grounds, stopping at suburban stations half-a-mile apart. Steamers will also ply from the lake front, horse and cable cars now run direct

to the Exhibition, while the new elevated railroad starting from Congress Street will be finished as far as the grounds. Drinking water at the Exhibition will be supplied from the beautifully clear springs of Wankesha about 90 miles distant; in a short time the general water supply of the city, which has lately been far from what might be desired, will be derived from the new crib through a tunnel 4 miles out into the lake, where it is said the water is quite free from sewerage contamination. A great deal has already been done in the way of paving streets, cleansing alleys, and generally cleaning and improving the city. Much has also been done towards completing the splendid boulevard system, which will ultimately run entirely round the city, and with the numerous and extensive parks afford drives of nearly 100 miles in length. Many hotels and boarding-houses in different parts of the city have been put up with a view to accommodate the numerous visitors who, it is expected, will flock next year to Chicago, and others are commenced or projected, especially in the neighbourhood of Jackson Park, where quite a new city has sprung up, and it is thought that 150,000 strangers will thus be accommodated.

Financial Position.

The total receipts up to July 31 amounted to 1,987,864*l.*, derived from the following sources: capital stock 999,475*l.*, appropriation by the city of Chicago 900,000*l.*, interest on deposits 10,039*l.*, miscellaneous receipts 14,792*l.*, and liabilities 13,568*l.* The disbursements for preliminary organisation expenses amounted to 18,156*l.*, and up to the end of July 202,850*l.* had been expended in general expenses, and 1,306,128*l.* for the various disbursements which came under the head of constructive expenditure, making a total of 1,527,134*l.*, and leaving a balance in hand of 410,750*l.*

The constructive expenditure in July amounted to 147,283*l.*, and the administrative or general expenses to 14,818*l.*, a total for the month of 161,101*l.* The force employed by the direction that month numbered 1,743 persons and the compensation paid was 29,315*l.* The whole force employed on the grounds by the administration and contractors was about 8,400 hands.

The total contracts let reach to the figure of 1,874,193*l.*, of which sum 973,056*l.* was paid to the end of July, leaving a balance payable of 901,137*l.* The contracts for the 13 principal buildings constructed at the expense of the Commission amount to 1,206,228*l.*, of which 796,820*l.* has been paid. The cost is distributed as follows:—

	£
Mines and Mining Building	52,582
Electricity Building	84,900
Galleries of Fine Arts	98,528
Manufactures and Liberal Arts Building	306,760
Transportation Building	57,893
Machinery Hall	227,735
Administration Building	95,569
Agricultural	136,753
Forestry	14,623
Women's	26,064
Horticultural	56,940
Fisheries	42,844
Dairy	5,037

The enlarged scale on which it was found necessary to carry out the works, with a view to complete the original plans proposed and to meet the great demands of American exhibitors and foreign Governments, has caused a larger expenditure than was at first reckoned on. Various estimates have been made with regard to the total sum which will be required before the opening of the Exhibition to the public. The balance in hand of 410,750*l.* will be exhausted by October 21, the day of dedication, and it is calculated that, even with the exercise of some economy, a further sum of at least 1,300,000*l.* will be required before the gate money is available. For this reason a grant or loan of 1,000,000*l.* was requested from Congress. The Federal Government had participated only so far towards the Exhibition as to appropriate a sum of 80,000*l.* for Government exhibits, 46,000*l.* for the expenses of the National Commission, and 20,600*l.* for medals and diplomas, so that the decision of Congress was awaited with much interest, not only with regard to financial assistance, but as lending substantial proof of the national character of the Exhibition, and disposing of the possible contention that because the principal funds were raised by Chicago it was therefore a local enterprise.

After some delay both branches of the Legislature eventually Government passed a Bill, on August 5, appropriating 2,500,000 dol. as a gift grant. to the Exposition, in the form of an issue to be made of 5,000,000 half-dollar souvenir coins, and this grant has been accepted by the direction. The souvenir half-dollar will be a legal tender coin, and as evidence at once came forward that they will be sought for at enhanced value, applications having been immediately received for a certain number at a premium, the directors, on the 12th instant, authorised their disposal at the price of 1 dol. each in sums of 50 or multiples thereof.

Though this grant may thus produce 1,000,000*l.*, the direction are proceeding on the basis of receiving only 500,000*l.* for the coins, and propose issuing bonds to the amount of 1,000,000*l.*, bearing 6 per cent., for the purpose of completing the work of the Exhibition and placing the Treasury in possession of ample funds to cover all contingencies until revenues come in. It is not, however, calculated that the whole of this issue will be required; therefore, only such portion as may be necessary will be floated. Bonds to be issued.

Sunday
closure.

An important condition of the Government grant, which formed part of the Bill, is that the Exhibition shall be closed on Sundays. It is thought that this condition may prove to be somewhat prejudicial to the enterprise, but, unless the question be again raised at the next meeting of Congress, when the compromise of a partial opening of the grounds is hoped for, the decision is final.

Entrance fee.

The entrance payment is fixed at 50 c., with a small additional sum for admittance to the Midway Plaisance. For some months past the grounds have been open to visitors at an entrance fee of 25 c., and on Sundays as many as 20,000 people have visited the buildings in course of construction. The total receipts from this source up to the 11th instant have been 12,383*l*.

Dedication.

The date fixed for the dedication of the Exhibition has been changed from October 12 to October 21, when the buildings will be formally handed over to the nation. The former date was the day on which, according to the old system, Columbus first discovered America, and the latter date corresponds with our present calendar. The programme is not yet finally decided on, but the ceremonies will extend over three days, from October 19 to October 21, the final dedication taking place in the Manufactures and Liberal Arts Building in the presence of the President, and where seats will be provided for the guests who witness the ceremony.

On each of the three nights there will be a pyrotechnic display, which it is intended shall be both magnificent and novel. A striking feature will be the procession of the centuries, consisting of 24 floats, to be drawn by cable through the waters of the grounds, and manned by groups of living figures, designed to represent peace, literature, the various arts, and other subjects illustrative of progress. On the first and second days a military parade and a civic spectacle will take place. It is proposed that 15,000 troops shall assemble and be quartered in or near the Exhibition buildings. Invitations have been sent to all fraternal, patriotic, industrial and civic societies in the United States to participate in the civic spectacle. This procession will pass through the principal streets of the city, and will be reviewed, as will also be the troops, by the President, the Members of the Senate and the House of Representatives, the foreign Representatives, and the Governors of the States.

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1893.
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N^o. 277.

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UNITED STATES.

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UNITED STATES, OF THE AGREEMENTS
CONCLUDED UNDER SECTION 3 (RECI-
PROCITY CLAUSE) OF THE MCKINLEY ACT
OF OCTOBER 1, 1890.

Presented to both Houses of Parliament by Command of Her Majesty,
MARCH, 1893.

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No. 277.

UNITED STATES.

WASHINGTON.

Sir Julian Pauncefote to the Earl of Rosebery:

My Lord,

Washington, February 2, 1893.

I HAVE the honour to enclose herewith a letter which I have received from Mr. Michael Herbert, First Secretary to this Legation, transmitting a Report which he has drawn up in regard to the effect of the Treaties concluded under the Reciprocity Clause of the McKinley Act upon the Foreign Commerce of the United States.

This Report contains valuable information based on reliable statistics, and it will no doubt be read with special interest at the present time, when the tariff question stands foremost among those which will be submitted to Congress under the presidency of Mr. Cleveland.

I have, &c.

(Signed) JULIAN PAUNCEFOTE.

Mr. Herbert to Sir Julian Pauncefote.

Sir,

Washington, February 2, 1893.

I HAVE the honour to transmit herewith a Report which I have drawn up in regard to the Effect of the Treaties concluded under the Reciprocity Clause of the McKinley Act upon the Foreign Commerce of the United States.

The Tables included in this Report are taken from publications issued by the Bureau of Statistics in Washington.

I have, &c.

(Signed) MICHAEL H. HERBERT.

Report on the Effect of the Treaties concluded under the Reciprocity Clause (Section 3) of the McKinley Act of October 1, 1890, upon the Foreign Commerce of the United States.

ABSTRACT of Contents.

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Dates of the various Reciprocity Treaties	2
Tables showing value of United States trade with reciprocity countries ..	2
Exports of the United States since the treaties	15
Imports of the United States since the treaties	15
Conclusion	16

Date of
treaties.

The following are the dates in which the various reciprocity treaties entered into by the United States took effect:—

With Germany, February 1, 1892; Austria-Hungary, May, 25, 1892; Brazil, April 1, 1891; Cuba and Puerto Rico, February 1, 1891; Santo Domingo, September 1, 1891; with Salvador, British West Indies, and British Guiana, February 1, 1892; Nicaragua, April 15, 1892; Honduras, May 25, 1892; and with Guatemala, May 30, 1892.

TABLES showing the Value of the Trade of the United States with the above-named Countries since the Reciprocity Treaties went into effect, compared with the Value of the Trade during corresponding Prior Periods.

A. IMPORTS.

Countries.	Value.			
	1891.	1892.	Increase.	Decrease.
	Dollars.	Dollars.	Dollars.	Dollars.
European—				
Germany, 8 months ending Sept. 30 ...	64,539,550	56,888,576	...	7,650,974
Austria-Hungary, 4 months ending Sept. 30	4,027,046	2,785,815	...	1,241,231
Total	68,566,596	59,674,391	...	8,892,205
American—				
Salvador, 8 months ending Sept. 30 ...	1,453,970	2,298,674	844,704	...
Nicaragua, 5 months ending Sept. 30 ...	867,059	663,376	...	203,683
Guatemala, 4 months ending Sept. 30 ...	870,250	724,393	...	145,857
Honduras, 4 months ending Sept. 30 ...	441,461	238,088	...	203,373
*Cuba, 13 months ending Aug. 31, 1891, and Sept. 30, 1892	69,819,137	85,775,106	15,955,969	...
Puerto Rico, 13 months ending Aug. 31, 1891, and Sept. 30, 1892	3,549,155	3,864,124	314,969	...
*Santo Domingo, 13 months ending Aug. 31, 1891, and Sept. 30, 1892 ...	1,589,034	3,141,699	1,552,665	...
*British West Indies,† 8 months ending Sept. 30	11,335,133	10,864,173‡	...	470,960
Brazil, 18 months ending March 31, 1891, and Sept. 30, 1892	104,346,192	180,694,773	76,348,581	...
British Guiana, 6 months ending Sept. 30	1,808,352	1,001,567	...	806,785
Total	196,079,743	289,266,473	93,186,730	...
Grand total	264,646,339	345,940,864	84,294,525	...

* The West Indies, Cuba, and Santo Domingo are classed in these tables as American.

† As trade with Bermuda cannot be separately stated before July 1, 1891, it is, for better comparison, included with British West Indies in 1892 for the six months ending June 30.

‡ Includes imports from Bermuda, 441,936 dol.

D. DOMESTIC EXPORTS.

Countries.	Value.			
	1891.	1892.	Increase.	Decrease.
	Dollars.	Dollars.	Dollars.	Dollars.
European—				
Germany, 8 months ending Sept. 30 ...	47,435,942	57,751,141	10,315,199	...
Austria-Hungary, 4 months ending Sept. 30 ...	237,814	241,923	4,109	...
Total ...	47,673,756	57,993,064	10,319,308	...
American—				
Salvador, 8 months ending Sept. 30 ...	917,641	775,687	...	141,954
Nicaragua, 5 months ending Sept. 30 ...	571,680	319,323	...	252,357
Guatemala, 4 months ending Sept. 30 ...	625,613	593,090	...	32,523
Honduras, 4 months ending Sept. 30 ...	159,012	145,107	...	13,905
Cuba, 13 months ending Aug. 31, 1891, and Sept. 30, 1892 ...	12,683,377	21,797,727	9,114,350	...
Puerto Rico, 13 months ending Aug. 31, 1891, and Sept. 30, 1892 ...	2,356,829	2,829,341	472,512	...
Santo Domingo, 13 months ending Aug. 31, 1891, and Sept. 30, 1892 ...	998,733	1,181,332	182,549	...
British West Indies,* 8 months ending Sept. 30 ...	5,616,514	5,365,329†	...	251,185
Brazil, 18 months ending March 31, 1891, and Sept. 30, 1892 ...	19,268,710	20,762,228	1,493,518	...
British Guiana, 6 months ending Sept. 30 ...	1962,126	904,434	...	57,692
Total ...	44,160,285	51,613,598	10,453,313	...
Grand total ...	91,831,041	112,606,662	20,772,621	...

* As trade with Bermuda cannot be separately stated before July 1, 1891, it is, for better comparison, included with British West Indies in 1892 for the 6 months ending June 30.

† Includes exports to Bermuda, 401,986 dol.

From the foregoing tables it will be seen that the total values of the imports and exports of the United States with countries with which reciprocity treaties have been concluded, since those treaties have been in force to September 30, 1892, as compared with corresponding periods, prior to the treaties, have been as follows:—

C. SUMMARY.

Description.	Prior to Treaty.	Since Treaty.	Increase.	Decrease.	Increase or Decrease.
	Dollars.	Dollars.	Dollars.	Dollars.	Per cent.
Domestic exports—					
Germany and Austria-Hungary...	47,673,756	57,993,064	10,319,308	...	+ 21·65
American countries ...	44,160,285	54,613,598	10,453,313	...	+ 23·67
Imports—					
Germany and Austria-Hungary...	68,566,596	59,674,391	...	8,892,205	— 12·97
American countries ...	196,079,743	289,266,473	93,186,730	...	+ 47·52

UNITED STATES.

D.—TABLES showing the condition of the Trade of the United States for a Series of Recent Years with the Countries with which they have Reciprocity Treaties.

AUSTRIA-HUNGARY.

Date.	Exports.			Imports.			Excess of Exports (+) or Imports (-).
	Domestic.	Foreign.	Total.	Free.	Dutiable.	Total.	
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	
Year ending June 30—							
1877 ..	2,666,246	2,300	2,668,546	155,427	258,593	414,020	+ 2,254,526
1878 ..	2,827,581	3,673	2,831,254	197,800	74,950	272,750	+ 2,559,004
1879 ..	2,640,648	1,059	2,641,707	168,565	147,248	315,813	+ 2,325,894
1880 ..	2,304,601	2,228	2,306,829	403,839	1,151,138	1,555,007	+ 751,822
1881 ..	2,255,140	272	2,255,412	364,270	1,051,341	1,415,611	+ 839,801
1882 ..	2,286,162	9,540	2,295,702	633,524	1,811,288	2,444,812	- 149,110
1883 ..	1,715,382	64,522	1,779,904	581,222	2,408,301	2,984,923	- 1,205,019
1884 ..	2,433,025	6,857	2,439,882	1,176,655	6,568,310	7,744,965	- 5,255,083
1885 ..	2,603,216	105,321	2,714,537	1,099,459	4,646,171	5,745,580	- 3,031,043
1886 ..	1,950,267	44,868	1,995,135	952,726	5,650,382	6,603,058	- 4,607,923
1887 ..	679,981	3,000	682,981	1,070,316	7,451,772	8,522,088	- 7,839,107
1888 ..	331,682	1,164	332,826	1,045,123	7,638,405	8,633,528	- 8,350,702
1889 ..	720,825	5,227	726,052	805,502	6,886,795	7,642,297	- 6,916,245
1889 ..	945,703	2,650	948,353	819,820	8,511,558	9,331,378	- 8,383,025
1890 ..	1,215,540	95,548	1,311,083	3,594,659	8,000,651	11,595,310	- 10,284,227
1891 ..	1,485,233	42,747	1,527,980	2,616,472	5,102,093	7,718,565	- 6,190,585
1892 ..							

GERMANY.

Date.	Exports.			Imports.			Excess of Exports (+) or Imports (-).
	Domestic. Dollars.	Foreign. Dollars.	Total. Dollars.	Free. Dollars.	Importers.		
					Dutiable. Dollars.	Total. Dollars.	
Year ending June 30—							
1877	57 456,120	651,313	58,107,433	3,213,561	29,290,804	32,503,365	+ 25,598,068
1878	53,991,387	818,453	54,809,845	3,358,756	31,431,347	34,790,103	+ 20,019,742
1879	56,164,394	392,851	57,067,245	3,252,486	32,267,352	35,519,818	+ 21,537,427
1880	56,292,106	770,157	57,062,263	6,497,259	45,713,978	52,211,237	+ 4,831,026
1881	68,858,571	1,329,681	70,188,252	6,082,762	46,966,419	52,989,181	+ 17,199,071
1882	52,790,056	1,438,897	54,228,953	8,779,055	47,589,487	56,368,542	- 2,189,589
1883	64,340,490	1,929,439	66,169,929	7,936,189	49,441,539	57,377,728	+ 8,792,201
1884	59,251,307	1,351,752	60,603,059	10,733,885	54,285,277	65,019,163	- 4,416,104
1885	60,819,091	1,403,700	62,222,791	9,358,367	53,883,386	63,241,753	- 1,018,962
1886	60,923,857	1,037,336	61,961,193	10,631,575	58,523,422	69,154,997	- 7,193,804
1887	57,316,655	1,254,617	58,571,272	11,406,127	69,241,433	80,647,560	- 22,076,283
1888	55,621,264	792,907	56,414,171	11,244,988	67,176,867	78,421,885	- 22,007,664
1889	66,568,695	1,433,899	68,002,594	10,893,364	70,849,182	81,742,546	- 13,739,952
1890	84,315,216	1,248,097	85,563,312	12,025,482	56,803,201	98,337,683	- 13,274,371
1891	91,684,981	1,110,475	92,795,456	19,469,530	77,846,833	97,316,383	- 4,520,927
1892	104,180,732	1,340,826	105,521,558	18,869,832	64,037,721	82,907,553	+ 22,614,005

UNITED STATES.

GUATEMALA.*

Date.	Exports.			Imports.			Excess of Imports
	Domestic.	Foreign.	Total.	Free.	Dutiable.	Total.	
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Year ending June 30—							
1886 ..	533,640	22,289	545,929	1,663,162	294,470	1,957,632	1,411,703
1887 ..	553,179	26,975	580,154	2,364,825	283,888	2,648,713	2,068,559
1888 ..	387,771	29,090	416,861	1,908,281	177,186	2,085,467	1,168,606
1889 ..	969,871	24,830	994,701	2,297,159	49,526	2,346,685	1,351,984
1890 ..	1,326,388	19,331	1,345,719	2,257,222	24,459	2,281,681	935,962
1891 ..	1,971,001	26,943	1,997,944	2,617,888	211	2,618,139	620,255
1892 ..	1,809,577	41,775	1,851,352	3,182,838	..	3,182,838	1,331,486

HONDURAS.*

1886 ..	428,104	13,795	441,899	728,162	2,397	730,559	288,660
1887 ..	426,741	16,182	442,923	854,801	3,118	857,919	415,996
1888 ..	672,796	17,779	690,575	956,381	2,950	959,331	268,756
1889 ..	618,973	18,202	637,175	1,210,607	4,954	1,215,561	578,886
1890 ..	522,631	23,393	546,024	980,681	3,723	984,404	432,380
1891 ..	583,114	57,807	640,921	1,152,993	6,598	1,159,591	518,670
1892 ..	478,947	36,377	515,324	969,989	2,340	962,329	447,105

* From 1877 to 1885 not separately given, but included under Central American States.

NICARAGUA.*

Date.	Exports.			Imports.			Excess of Imports.
	Domestic.	Foreign.	Total.	Free.	Dutiable.	Total.	
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Year ending June 30—							
1886	471,671	17,702	489,373	1,067,014	888	1,067,902	578,599
1887	701,151	22,023	723,174	1,660,342	1,820	1,662,162	938,988
1888	801,156	65,866	867,022	1,495,775	396	1,496,171	569,149
1889	900,513	103,874	1,009,687	1,745,996	250	1,747,246	737,559
1890	1,270,073	102,946	1,373,019	1,655,372	318	1,655,690	282,671
1891	1,592,013	100,929	1,692,942	1,704,306	1,455	1,705,961	13,019
1892	1,187,189	119,990	1,307,179	1,656,708	1,165	1,657,873	350,694

SALVADOR.*

1886	..	..	..	470,541	6,649	477,190	1,113,043	148,232	1,261,275	784,085
1887	..	..	..	477,125	761	477,886	907,189	152,152	1,059,341	581,455
1888	..	..	..	645,302	1,966	647,268	1,387,692	85,738	1,473,430	896,162
1889	..	..	..	690,854	10,312	701,196	1,635,466	26,696	1,662,162	900,966
1890	..	..	..	886,231	13,315	899,546	1,384,112	69,846	1,453,958	594,412
1891	..	..	..	1,134,995	15,465	1,150,460	1,733,222	49,844	1,783,066	632,606
1892	..	..	..	1,274,021	20,247	1,294,268	2,330,697	5	2,330,702	1,036,434

* From 1877 to 1885 not separately given, but included under Central American States.

BRITISH WEST INDIES.

Date.	Exports.			Imports.			Excess of Exports (+) or Imports (-).
	Domestic. Dollars.	Foreign. Dollars.	Total. Dollars.	Free. Dollars.	Dutiable. Dollars.	Total. Dollars.	
Year ending June 30—							
1879 ..	6,485,391	217,045	6,702,436	912,166	2,647,829	3,559,995	+ 3,142,441
1880 ..	6,849,878	217,870	7,067,748	992,799	4,489,203	5,482,002	+ 1,585,746
1881 ..	8,138,665	257,579	8,396,144	916,597	5,377,449	6,294,046	+ 2,102,098
1882 ..	7,824,293	217,073	8,041,366	1,152,502	5,491,885	6,644,387	+ 1,896,979
1883 ..	8,241,622	260,531	8,502,153	1,495,329	7,240,783	8,736,112	+ 233,959
1884 ..	8,553,244	296,070	8,849,314	2,600,181	7,191,435	9,791,616	+ 942,302
1885 ..	6,963,219	247,660	7,210,879	2,428,982	7,936,449	10,368,381	+ 3,152,502
1886 ..	7,113,699	208,427	7,322,126	2,668,680	7,185,100	9,853,680	+ 2,531,554
1887 ..	6,465,030	182,174	6,647,204	2,776,573	8,793,206	11,569,779	+ 4,922,575
1888 ..	7,450,018	161,515	7,611,533	4,285,755	8,265,185	12,550,940	+ 4,939,407
1889 ..	8,197,693	190,413	8,388,106	5,106,066	10,879,496	15,985,562	+ 7,597,456
1890 ..	8,074,433	214,353	8,288,786	4,729,458	10,185,560	14,865,018	+ 6,576,232
1891 ..	9,546,068	233,080	9,779,138	9,791,685	6,511,499	16,293,184	+ 6,514,046
1892 ..	7,995,185	135,072	8,130,257	11,897,999	5,421,133	12,440,132	+ 4,309,875

WASHINGTON.

SANTO DOMINGO.

Date.	Exports.		Imports.		Excess of Exports (+) or Imports (-).		
	Domestic. Dollars.	Foreign. Dollars.	Total. Dollars.	Free. Dollars.		Dutiable. Dollars.	Total. Dollars.
Year ending June 30—							
1877 ..	644,324	42,920	687,244	260,736	258,430	519,166	168,078
1878 ..	624,221	27,384	652,105	151,582	234,653	386,235	266,870
1879 ..	728,738	28,477	757,215	112,985	321,748	434,733	322,482
1880 ..	939,501	23,453	962,954	164,979	495,514	660,493	302,461
1881 ..	757,590	30,300	787,890	204,205	720,576	924,781	136,891
1882 ..	904,149	9,855	914,004	166,329	741,731	908,060	5,941
1883 ..	1,179,200	22,674	1,201,874	157,412	1,260,107	1,417,519	215,645
1884 ..	1,257,969	36,201	1,294,170	93,775	1,346,078	1,439,853	145,683
1885 ..	962,428	24,273	986,701	96,217	1,365,202	1,461,419	474,708
1886 ..	26,645	1,043,930	1,043,930	261,862	1,394,926	1,656,181	612,201
1887 ..	1,014,414	18,451	1,032,865	189,100	1,191,026	1,380,026	847,261
1888 ..	793,560	25,147	817,707	300,702	1,258,690	1,459,392	641,685
1889 ..	1,150,651	19,368	1,180,019	303,757	1,150,504	1,454,291	274,242
1890 ..	926,051	23,566	950,217	230,841	1,720,172	1,951,013	1,000,796
1891 ..	986,526	36,925	1,023,751	1,009,690	600,670	1,610,360	586,609
1892 ..	934,188	35,252	1,019,450	2,279,287	14,481	2,293,748	1,274,293

UNITED STATES.

CUBA.

Date.	Exports.		Total.	Imports.		Total.	Excess of Imports.
	Domestic.	Foreign.		Free.	Dutiable.		
Year ending June 30—							
1877 ..	12,709,008	662,575	13,371,578	265,682	65,562,713	65,828,395	52,456,817
1878 ..	11,365,013	624,250	11,989,263	193,103	56,708,229	56,901,332	44,912,069
1879 ..	12,201,091	529,364	12,731,455	294,933	63,354,723	63,649,556	50,913,601
1880 ..	10,924,683	301,066	11,225,698	515,627	64,867,391	65,423,018	54,197,319
1881 ..	10,999,276	365,309	11,364,585	519,390	62,484,014	63,003,404	51,638,819
1882 ..	11,775,078	359,751	12,134,824	656,042	69,794,610	70,450,552	58,315,828
1883 ..	14,567,918	535,755	15,103,703	785,829	64,758,705	65,544,534	50,440,831
1884 ..	10,562,850	347,373	10,910,253	1,484,638	55,696,859	57,181,497	46,270,744
1885 ..	8,719,195	286,363	9,006,460	1,781,049	40,520,044	42,306,093	23,299,933
1886 ..	10,020,379	388,291	10,409,170	1,765,751	49,345,029	51,110,780	40,701,610
1887 ..	10,132,930	407,481	10,546,111	2,033,205	47,452,229	49,515,434	38,969,023
1888 ..	9,724,124	329,436	10,053,560	2,046,379	47,252,708	49,310,987	39,265,527
1889 ..	11,297,198	394,113	11,691,311	2,405,425	49,721,198	52,130,623	40,439,312
1890 ..	12,669,509	414,906	13,084,415	2,761,711	51,039,880	53,801,591	40,717,176
1891 ..	11,949,605	295,283	12,224,888	26,014,502	35,666,893	61,714,395	49,489,507
1892 ..	17,622,411	331,159	17,953,570	66,140,825	11,790,846	77,931,671	59,978,101

PUERTO RICO.

Date.	Exports.			Imports.			Excess of Imports.
	Domestic.	Foreign.	Total.	Free.	Dutiable.	Total.	
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	
Year ending June 30 --							
1877 ..	1,980,265	109,320	2,089,585	83,796	4,321,956	4,405,752	2,316,167
1878 ..	1,504,431	49,358	1,553,789	22,061	4,776,756	4,800,817	3,247,028
1879 ..	1,771,483	39,191	1,810,674	64,621	4,320,333	4,384,954	2,574,280
1880 ..	1,969,284	47,289	2,016,573	539,793	4,204,093	5,443,886	3,427,313
1881 ..	1,712,732	50,980	1,763,712	516,302	3,343,397	3,860,199	2,096,487
1882 ..	1,838,214	24,367	1,862,581	284,042	5,432,832	5,716,874	3,854,293
1883 ..	2,116,499	43,249	2,164,708	34,605	5,442,888	5,477,493	3,312,735
1884 ..	2,188,609	36,006	2,224,615	67,488	6,322,968	6,890,456	4,665,841
1885 ..	1,533,177	86,028	1,569,205	656,992	5,447,271	6,104,263	4,535,058
1886 ..	1,676,929	33,640	1,710,569	431,757	4,162,787	4,594,544	2,883,975
1887 ..	1,707,241	31,251	1,738,492	74,367	4,587,323	4,661,690	2,923,198
1888 ..	1,920,358	49,260	1,969,618	293,450	4,119,033	4,412,483	2,442,865
1889 ..	2,175,458	49,473	2,224,931	103,720	3,603,653	3,707,373	1,482,442
1890 ..	2,247,700	49,838	2,297,538	176,394	3,877,232	4,053,626	1,756,084
1891 ..	1,112,334	42,900	2,155,234	1,856,955	1,307,155	3,164,110	1,008,876
1892 ..	2,803,631	47,372	2,853,003	3,236,337	11,670	3,248,007	392,004

BRAZIL.

Date.	Exports.			Imports.			Excess of Imports.
	Domestic.	Foreign.	Total.	Free.	Dutiable.	Total.	
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	
Year ending June 30—							
1877	7,498,118	83,695	7,581,813	40,205,874	3,292,167	43,498,041	35,916,228
1878	8,610,646	76,058	8,686,704	39,685,289	3,288,734	42,968,973	34,232,269
1879	8,106,928	87,442	8,194,370	37,038,691	2,336,750	39,375,441	31,181,071
1880	8,436,696	108,650	8,605,346	45,777,595	6,192,496	51,970,090	43,364,744
1881	9,138,637	113,778	9,252,415	44,457,608	8,324,928	52,782,536	43,530,121
1882	9,035,452	117,110	9,152,562	40,230,017	8,571,861	48,801,878	39,649,316
1883	9,159,380	92,764	9,252,094	38,902,459	5,585,990	44,488,459	35,236,865
1884	8,645,281	50,398	8,695,659	39,186,135	11,079,754	50,265,889	41,570,230
1885	7,258,035	59,258	7,317,293	38,136,191	7,127,469	45,263,660	37,946,367
1886	6,480,738	60,478	6,541,216	36,196,362	5,711,170	41,907,532	35,366,316
1887	8,071,653	56,230	8,127,883	47,076,473	5,876,703	52,953,176	44,825,293
1888	7,563,892	73,116	7,637,008	46,873,824	6,836,410	53,710,234	46,573,226
1889	9,276,511	74,570	9,351,081	55,468,476	4,935,328	60,403,804	51,052,723
1890	11,802,496	69,718	11,972,214	57,604,846	1,713,910	59,318,756	47,346,642
1891	14,019,273	70,973	14,125,246	80,887,444	2,343,151	83,230,595	69,110,349
1892	14,240,009	51,864	14,291,873	118,428,168	205,446	118,633,604	104,341,731

BRITISH GUIANA.

WASHINGTON.

13

Date.	Exports.			Imports.			Excess of Exports (+) or Imports (-).
	Domestic. Dollars.	Foreign. Dollars.	Total. Dollars.	Free. Dollars.	Importable.		
					Dutiable. Dollars.	Total. Dollars.	
Year ending June 30—							
1877	1,854,548	43,022	1,897,570	45,313	3,460,306	3,505,619	— 1,608,049
1878	1,924,922	51,048	1,975,970	4,989	2,136,296	2,141,285	— 165,315
1879	1,719,827	63,454	1,783,281	58,661	515,464	574,125	+ 1,209,156
1880	1,723,166	60,503	1,783,669	11,008	1,898,986	1,909,994	— 126,825
1881	1,652,373	41,974	1,733,447	22,087	2,401,987	2,424,074	— 700,627
1882	1,976,585	52,784	2,029,320	7,527	3,230,915	3,228,442	— 1,199,122
1883	1,978,422	61,784	2,035,166	9,892	5,936,537	5,946,429	— 3,911,278
1884	1,833,148	51,268	1,884,416	4,360	4,091,176	4,095,586	— 2,211,120
1885	1,631,608	9,049	1,640,657	10,401	910,953	921,354	+ 719,303
1886	1,554,726	29,568	1,584,294	6,902	1,837,694	1,864,596	— 280,302
1887	1,423,211	45,828	1,469,039	15,212	2,724,661	2,739,873	— 1,270,834
1888	1,651,711	65,700	1,717,411	5,755	2,816,627	2,822,382	— 1,104,971
1889	1,643,249	53,020	1,696,269	14,135	4,512,046	4,526,181	— 2,829,912
1890	2,011,122	95,223	2,106,345	1,659	4,325,316	4,326,975	— 2,220,630
1891	1,761,350	97,392	1,858,742	977,659	3,905,547	4,883,206	— 3,024,464
1892	1,855,542	47,757	1,933,299	4,362,994	210	4,363,204	— 2,429,905

UNITED STATES.

E.—TABLE showing the Summary of the Commerce of the United States with Foreign Countries with which Reciprocity Treaties exist for the Year ending June 30, 1892, compared with Commerce of the same Countries for preceding Years 1888 to 1891 inclusive.

Countries.	Exports.			Imports.			Excess of Exports (+) or Imports (-).
	Domestic.	Foreign.	Total.	Free.	Dutiable.	Total.	
Austria-Hungary	Dollars. 1,485,233	Dollars. 47,747	Dollars. 1,527,980	Dollars. 2,616,472	Dollars. 5,102,093	Dollars. 7,718,565	Dollars. - 6,190,585
Germany	104,180,732	1,840,826	105,521,558	18,869,832	64,037,721	82,907,553	+ 22,614,005
Guatemala	1,809,577	41,775	1,851,352	3,182,838	..	3,182,838	- 1,331,486
Honduras	478,947	36,277	515,224	938,989	2,340	962,329	- 447,105
Nicaragua	1,187,189	119,990	1,307,179	1,656,708	1,165	1,657,873	- 350,694
Salvador..	1,274,021	20,247	1,294,268	2,330,697	5	2,330,702	- 1,036,434
British West Indies	7,995,185	135,072	8,130,257	11,897,999	542,133	12,440,132	- 4,309,875
Santo Domingo..	984,188	35,262	1,019,450	2,279,267	14,481	2,293,748	- 1,274,298
Cuba	17,622,411	331,159	17,953,570	66,140,825	11,790,846	77,931,671	- 59,978,101
Puerto Rico	2,808,631	47,372	2,856,002	3,236,337	11,670	3,248,007	- 392,004
Brazil	14,240,009	51,864	14,291,873	118,428,168	205,446	118,633,604	- 104,341,731
British Guiana	1,885,542	47,757	1,933,299	4,362,994	210	4,363,204	- 2,429,905
Total	155,951,665	2,250,348	158,202,013	235,962,116	81,708,110	317,670,226	- 159,468,213
Total, 1891	138,567,090	2,183,715	140,750,805	150,830,833	136,243,627	287,074,360	- 146,323,555
" 1890	137,098,152	2,283,336	139,381,488	84,631,598	168,230,175	252,861,773	- 123,480,235
" 1889	104,210,821	2,923,301	106,608,122	81,990,673	152,373,628	234,564,301	- 127,961,179
" 1888	87,622,614	1,612,946	89,235,560	71,764,086	146,630,195	217,394,280	- 128,158,720

As will be observed from Table A and Table B the value of the exports from the United States to Germany and Austria-Hungary during the periods since the reciprocity treaties have been in effect has increased 10,319,308 dol. (2,063,861*l.*) as compared with the corresponding periods prior to the treaties. This increase consisted largely of breadstuffs and provisions. Exports.

The increase of 10,453,313 dol. (2,090,662*l.*) in the value of the exports of the United States to the American countries for the same periods consisted mainly of wheat, flour, meat, dairy products, bacon, hams, lard, manufactures of iron and steel, and lumber and manufactures of. The largest increase in exports was with Cuba, amounting to 9,114,350 dol. (1,822,870*l.*). The increase in exports with Puerto Rico amounted to 472,512 dol. (94,502*l.*); with San Domingo, 182,549 dol. (36,509*l.*); with Brazil, 1,493,518 dol. (298,703*l.*). The increase with the last-named country being below the average increase from year to year, which used to take place prior to the conclusion of the reciprocity treaty. What increase consisted of.
Largest increase.

On the other hand, the exports to Salvador during the same periods decreased 141,954 dol. (28,390*l.*); to Nicaragua, 252,357 dol. (50,471*l.*); to Guatemala, 32,523 dol. (6,504*l.*); to Honduras, 13,905 dol. (2,781*l.*); to the British West Indies, 311,185 dol. (62,237*l.*); and to British Guiana, 57,692 dol. (11,538*l.*). Decrease in exports to certain countries.

It will be seen, therefore, that the exports of the United States since the reciprocity treaties went into effect increased with Germany, Austria-Hungary, Cuba, Brazil, Puerto Rico, and San Domingo, and decreased with Salvador, Nicaragua, Guatemala, Honduras, British West Indies, and British Guiana.

The total increase of the value of the exports of the United States to the reciprocity countries was 20,772,621 dol. (4,154,524*l.*), or about the same increase in exports which took place between the years 1889 and 1890 with the same countries before the reciprocity treaties existed. Total increase of exports.

There has been a very large increase in the value of imports into the United States with the reciprocity countries since the treaties were concluded, amounting in the aggregate to 84,294,525 dol. (16,858,905*l.*). This increase of imports, however, is entirely from the American countries, which export sugar, coffee, india-rubber, and drugs, the imports from Germany and Austria-Hungary having fallen off 7,650,974 dol. (1,530,194*l.*) and 1,241,231 dol. (248,246*l.*) respectively. Imports.

The imports from Brazil, which consist chiefly of coffee, have increased very largely during the 18 months up to September 30, the increase over the corresponding prior period amounting to 76,348,581 dol. (15,269,716*l.*). The value of the imports from Brazil of coffee alone since the treaty went into effect amounted to 145,522,354 dol. (29,104,470*l.*). Large imports from Brazil.

In the trade of the United States with Cuba there has been an increase in imports of 15,955,969 dol. (3,191,193*l.*) during the 13 months ending September 30. This increase consists almost entirely of sugar. Increased imports from certain countries.

The imports from San Domingo have increased 1,552,665 dol. (314,533*l.*) during the same period; from Puerto Rico 313,969 dol. (62,993*l.*) during the first 13 months after the treaty; and from Salvador 844,704 dol. (168,940*l.*) during the first 8 months after the treaty.

Decrease in
imports from
certain
countries.

On the other hand, the imports from Nicaragua have fallen off 203,683 dol. (40,736*l.*) during the 5 months ending September 30; the imports from Guatemala 145,357 dol. (29,071*l.*) during the 4 months ending September 30; the imports from Honduras 203,373 dol. (40,674*l.*) during the 4 months ending September 30; the imports from the British West Indies 470,960 dol. (94,192*l.*) during the 8 months ending September 30; and the imports from British Guiana 806,785 dol. (161,357*l.*) during the 6 months ending September 30.

What imports
consist of.

Nearly all the commodities which are imported into the United States from the American countries are imported free of duty, which accounts chiefly for the increase in the imports. The leading dutiable article is tobacco. Omitting Cuba and the British West Indies, the imports of dutiable merchandise from the American countries during the year ending June 30, 1892, amounted to only 235,317 dol. (47,063*l.*) in value, while the free merchandise amounted to 136,436,988 dol. (27,287,397*l.*).

Conclusion.

It is, perhaps, too soon to form a fair opinion in regard to the effect of the various reciprocity treaties entered into by the United States, but so far the results have not come up to the expectations of the authors of the reciprocity clause of the McKinley Act, and the United States have not reaped the advantages from the reciprocity policy which it was stated they would do. It is true that the imports of sugar and coffee from Cuba, Puerto Rico, and Brazil have increased very largely, and that the American consumer has been benefited thereby; but, on the other hand, both the exports and the imports of the United States have fallen off with Nicaragua, Honduras, Guatemala, British West Indies, and British Guiana since the treaties came into effect, and the total increase of exports with the other countries scarcely exceeds the total average yearly increase of exports which used to take place before the reciprocity treaties were concluded. So far Brazil, Cuba, and Puerto Rico have been the chief gainers from the treaties, but the anticipations of largely increased markets for the agricultural and manufacturing products of the United States have yet to be fulfilled.

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*Presented to both Houses of Parliament by Command of Her Majesty,
MARCH, 1893.*

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No. 280.

UNITED STATES.

WASHINGTON.

Sir Julian Pauncefote to the Earl of Rosebery.

My Lord,

Washington, February 1, 1893.

I HAVE the honour to enclose copy of a letter which I have received from Mr. Michael Herbert, First Secretary to this Legation, transmitting a Report which he has drawn up in regard to the effect of the McKinley Tariff on the Tin Plate Industry in the United States.

This Report, which is of special interest and practical value at the present time, displays an amount of research and ability in dealing with a much controverted subject which I have much pleasure in commending to your Lordship's approval.

I have, &c.

(Signed) JULIAN PAUNCEFOTE.

Mr. Herbert to Sir Julian Pauncefote.

Sir,

Washington, February 1, 1893.

I HAVE the honour to transmit a Report which I have drawn up in regard to the effect of the McKinley Tariff on the Tin Plate Industry in the United States.

So many contradictory statements have been made in regard to this subject that I have thought it might be of interest to endeavour to show the real condition of the Industry at the present moment.

I have, &c.

(Signed) MICHAEL H. HERBERT.

Report on the Effect of the McKinley Act on the Tin Plate Industry in the United States.

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History of duties on tin-plate in the United States.

Duty collected under Act of March 3, 1883.

The rates of duty in the United States on tin plate, terne plate, and taggers tin have varied considerably during the past 50 years. The Act of August 30, 1842, fixed this rate of duty at 2½ per cent. ad valorem. The Act of July 30, 1846, fixed the rate of duty on the same articles at 15 per cent. The Act of March 3, 1857, fixed the rate of duty at 8 per cent. The Act of March 2, 1861, fixed the rate at 10 per cent. The Act of July 14, 1862, fixed the rate at 25 per cent. The Act of May 1, 1872, at 22½ per cent. The Act of February 8, 1875, at 1·1 c. per 1 lb.; and the Act of March 2, 1883, at 1 c. per 1 lb.

Under the Act of March 3, 1883, the amount of duty collected on tin plate, terne, &c., imported into the United States was as follows:—

Fiscal Year.					Duty.	
					Dol.	c.
1884	..	..	..	..	5,278,813	21
1885	..	..	..	..	5,055,590	76
1886	..	..	..	..	5,740,984	05
1887	..	..	..	..	5,706,433	89
1888	..	..	..	..	6,322,242	96
1889	..	..	..	..	6,746,644	58
1890	..	..	..	..	10,577,115	01
Total	..	..	..	..	45,527,824	46

Cause of increased duty.

In spite of this large payment by the American consumers for the protection of domestic tin plate manufacture no tin plate was made in the United States, and the Secretary of the American Tin Plate Association, an organisation composed of sheet iron and steel manufacturers, appeared before the committee of ways and means when the McKinley Bill was pending, and asked for

an increase of duty of $1\frac{2}{10}$ c. per 1 lb., at the same time promising that if this extra duty were imposed there would be in one year sufficient plant erected to manufacture all the tin plate used in the United States. This request was acceded to by the framers of the McKinley Bill, and Section 143 of the Act of 1890 (McKinley Act) fixed the rate of duty at $2\frac{2}{10}$ c. per 1 lb. It runs as follows:—

Section 143 of
the McKinley
Act.

“All iron or steel sheets or plates, and all hoop, band, or scroll iron or steel, excepting what are known commercially as tin plates, terne plates, and taggers tin, and hereinafter provided for, when galvanised or coated with zinc or spelter, or other metals, or any alloy of those metals, shall pay $\frac{3}{4}$ c. per 1 lb. more duty than the rates imposed by the preceding paragraph upon the corresponding gauges, or forms, of common or black sheet or taggers iron or steel; and on and after July 1, 1891, all iron or steel sheets, or plates, or taggers iron coated with tin or lead, or with a mixture of which these metals or either of them is a component part, by the dipping or any other process, and commercially known as tin plates, terne plates, and taggers tin, shall pay $2\frac{2}{10}$ c. per 1 lb.: Provided, That on and after July 1, 1891, manufactures of which tin, tin plates, terne plates, taggers tin, or either of them, are component materials of chief value, and all articles, vessels or wares manufactured, stamped or drawn from sheet-iron or sheet-steel, such material being the component of chief value, and coated wholly or in part with tin or lead, or a mixture of which these metals or either of them is a component part, shall pay a duty of 55 per cent. ad valorem: Provided, That on and after October 1, 1897, tin plates and terne plates lighter in weight than 63 lbs. per 100 square feet shall be admitted free of duty, unless it shall be made to appear to the satisfaction of the President (who shall thereupon by proclamation make known the fact) that the aggregate quantity of such plates lighter than 63 lbs. per 100 square feet produced in the United States during either of the 6 years next preceding June 30, 1897, has equalled one-third the amount of such plates imported and entered for consumption during any fiscal year after the passage of this Act, and prior to October 1, 1897: Provided, That the amount of such plates manufactured into articles exported, and upon which a drawback shall be paid, shall not be included in ascertaining the amount of such importation: And provided further, That the amount or weight of sheet-iron or sheet-steel manufactured in the United States and applied or wrought in the manufacture of articles or wares tinned or terne-plated in the United States, with weight allowance as sold to manufacturers or others, shall be considered as tin and terne plates produced in the United States within the meaning of this Act.”

The McKinley Act was approved October 1, 1890, but the increased duty on tin plate did not go into effect until July 1, 1891. At the end of June, 1891, 9 months after the enactment of the Law, in spite of the assurance of adequate protection, it

Failure of
tin plate
manufacturers
to keep their
promises.

appears that not a single box of tin plate was being turned out in a commercial sense in the United States ("Congress Record," July 3, 1892, p. 6378), although plenty of time had elapsed for construction of plant and machinery. This failure to comply with the promises which the American Tin Plate Association had held out when they made their request for an increased duty commenced to alarm the protectionist press, and the following note of warning was sounded by the "Iron Age," a leading commercial publication:—

"It must be confessed by the most ardent friends of the industry that the progress thus far made in the domestic manufacture of tin plate has been disappointing. It had been supposed that a large number, if not a majority, of the sheet mills would add cold rolls and tinning stacks as soon as adequate tariff protection was assured. This has been done in very few cases. So far as we can learn there are not many sheet manufacturers to be added to the list of terne plate makers. . . . The friends and advocates of a domestic tinned plate industry could do no better thing at this time than to engage in missionary work in their own ranks and induce owners of sheet mills to go into the tinning business. The public expected this to be done, and the makers of sheet iron and sheet steel are standing in their own light when they refuse to take up the new industry and domesticate it. At the present rate of progress it is beyond the power of man to calculate when this country will be able to supply its own tin plate requirements."

Contradictory
statements as
to amount
manufactured
in the
United States.

A month or two later the papers commenced to be filled with wild statements and statistics as to the vast amount of tin plate manufactured in the United States since the Tin Plate Schedule of the McKinley Act came into effect, and on January 10, 1892, the American Tin Plate Manufacturers' Association issued a statement as to the factories in operation, with their capacity, which was put down at 30,545,300 lbs. a month.

On the other hand, a report (an extract from which I append) was published about the same time by the Tin Plate Consumers' Association of the United States, an organisation formed to watch the effect of legislation on the tin plate industry, and which is composed of both protectionists and tariff reformers from every State in the Union, in which it was stated that not one sheet of coke tin had yet been put on the market.

Extract from report of Tin Plate Consumers' Association:—

"Our Object.

"The acquirement of reliable information respecting the progress and development of the manufacture of tin plate, at home and abroad; the careful watching of all legislation affecting the interests of consumers of tin plate; the compiling of reliable statistics concerning the trade; and also the securing of such

united action for the defence of the trade interests as may be necessary.

" Our Position.

" Our position is not one of antagonism to the establishment of the tin plate industry in America. Representing among our members both political parties, we claim for ourselves as large a share of patriotism and desire for the material and industrial prosperity of our country as those who, from ignorance or for political ends, are claiming that the increased McKinley duty on tin plates has resulted in the establishment of a new industry, which has been accomplished without harm to the various industries in which we are individually engaged. Our position enables us to be the best judges on this subject, as the article, which is a raw material to us, is the subject of the experiment that is being made.

" We claim a right to give this experiment the closest watching, and to inform the public and Congress, from time to time, of the effect it has on our business, and of the results achieved. This can better be done as an organised body of tin plate consumers than as individuals, and explains our organisation, and we desire to have associated with us all consumers of tin plates, in order that our body may be thoroughly representative, and be enabled to speak with knowledge and authority. If the industry can be transferred to our country within a reasonable time, and without damage to our business and the hundreds of thousands of American workmen employed in our factories, giving us as cheap raw material as we obtained before the increased tax was levied on it, we realise we will be the greatest beneficiaries, and therefore naturally most anxious for its success. Our desire is, if possible, to transfer the question from one of politics to one of business.

" It is a matter of business that since the McKinley Bill was passed we have had to pay over 10,000,000 dol. more for the tin plates we use in our factories and workshops, and that the present duty will add every year over 15,000,000 dol. to the cost of our raw material. It is a matter of business, and not of politics, that up to the present moment not one sheet of coke tin, which constitutes over half our entire requirements, has yet been put on the market by the American manufacturers, and that the present output of all kinds does not constitute 1 per cent. of the entire consumption of tin plate in America. Again, it is a matter of business that the small lots produced have only been obtainable at prices considerably above what the same quality can be imported at, even under the increased duty. We consider, and all will agree with us, that the whole question is a most serious one to our interests, and the interests of the entire country, and open to the closest scrutiny and careful business watchfulness."

Owing to these contradictory statements it was difficult to know what to believe, but in April of this year, and again in
(1464) Colonel Ayers' reports.

August, the Treasury Department published official reports, drawn up at the request of the Government by Colonel Ayers, a special agent appointed for the purpose, showing the progress, extent, and amount of the production of tin plate in the United States, quarter by quarter, since the McKinley Act went into effect, according to the sworn statements of the manufacturers.

The following are the returns given by quarters:—

Quarter Ending—					Quantity.
					Lbs.
September 30, 1891	..	..	..	..	826,922
December 31, "	..	..	..	..	1,409,821
March 31, 1892	..	..	..	..	3,209,225
June 30, "	..	..	..	..	8,200,751
Total	..	..	..	..	13,646,719

The following tables, obtained from the same source, furnish the names and locations of the manufacturing firms, and the amount produced by them by quarters:—

Table A.—ABSTRACT of Tin Plates and Terne Plates Produced in the United States during the Quarter ended September 30, 1891. (Date from July 1 to September 30, 1891.)

Name of Manufacturer.	Voucher Number	Tin Plates.					Terne Plates.			
		Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	
		Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	
Marshall, Bros., and Co., Philadelphia, Pa. . . .	1	..	..	..	..	..	4,330	16,025	24,955	
N. and G. Taylor and Co., Philadelphia, Pa. . . .	2	..	..	..	..	..	40,747	..	628	
Pittsburg Electro-plating Co., Apollo, Pa. . . .	3	..	..	..	..	..	349,000	..	206,298	
St. Louis Stamping Co., St. Louis, Mo. . . .	4	..	10,213	3,233	6,546	..	25,650	..	..	
United States Iron and Tin Plate Manufacturing Co., Demmler, Pa. . . .	5	5,010	74,961	41,452	11,074	..	6,800	..	..	
Total	..	5,010	85,174	44,685	17,620	..	426,527	16,025	231,831	

Table B.—ABSTRACT of Tin Plates and Terne Plates produced in the United States during the Quarter ended December 31, 1891. (Date from October 1 to December 31, 1891.)

Name of Manufacturer.	Voucher Number.	Tin Plates.				Terne Plates.			
		Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.
		Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.
Anderson Tin Plate Co.,	1	..	..	..	..	..	25,495	..	..
Anderson, Ind. ..	2	..	..	..	..	30,881	..	..	..
Apollo Iron and Steel Co.,	3	..	..	..	..	..	13,200	..	..
Apollo, Pa. ..	4	..	..	..	..	..	..	147,521	..
Cleveland Tin Plate Co.,	5	..	..	..	..	..	225,936	80,965	2,240
Cleveland, Ohio ..	6	..	..	..	..	..	78,102	143,602	..
Fleming and Hamilton,	7	..	..	..	..	..	28,209	..	68,041
Pittsburg, Pa. ..		..	..	..	..	..			
Marshall Brothers and Co.,		..	..	..	..	..			
Philadelphia, Pa. ..		..	..	..	..	..			
N. and G. Taylor and Co.,		..	..	..	..	..			
Philadelphia, Pa. ..		..	..	..	..	..			
P. H. Lautman and Co.,		..	..	..	..	..			
Limited, Apollo, Pa. ..		..	..	..	..	..			

Table B.—ABSTRACT of Tin Plates and Terne Plates produced in the United States during the Quarter ended December 31, 1891. (Date from October 1 to December 31, 1891)—continued.

Name of Manufacturer.	Voucher Number.	Tin Plates.				Terne Plates.			
		Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.
		Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.
Pittsburg Electro-plating Co., Apollo, Pa.	8	..	..	..	..	..	186,000	..	69,250
St. Louis Stamping Co., St. Louis, Mo.	9	..	39,976	7,100	..	..	16,408	..	..
United States Iron and Tin Plate Manufacturing Co., Demmler, Pa.	10	..	34,884	49,090	34,410	..	26,894	16,260	..
William T. Simpson and Co., Cincinnati, Ohio	11	..	..	..	..	..	..	..	7,500
Total	..	..	123,134	58,367	34,410	108,237	600,244	338,348	147,031

UNITED STATES.

Table C.—ABSTRACT of Tin Plates and Terne Plates Produced in the United States during the Quarter ended March 31, 1892. (Date from January 1 to March 31, 1892.)

Name of Manufacturer.	Voucher Number.	Tin Plates.				Terne Plates.			
		Lightsr than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Lightsr than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.
		Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.
American Tin and Terne Plate Co., Philadelphia, Pa.	1	..	..	..	..	..	227,237	..	..
Anderson Tin Plate Co., An- derson, Ind.	2	..	94,368	..	..	..	52,416	..	..
Apollo Iron and Steel Co., Apollo, Pa.	3	..	..	..	..	182,005	..	23,133	..
Columbia Tin Plate Co., Piqua, Ohio.	4	..	68,920	..	17,500	..	2,750	..	2,800
Cleveland Tin Plate Co., Cleveland, Ohio.	5	..	49,788	43,835	6,560	..	110,766	675	..
Griffiths and Cadwalader, Pittsburg, Pa.	6	..	..	..	..	80,438	..	32,230	..
Jas. B. Scott and Co., Pitts- burg, Pa.	7	..	..	..	..	..	..	..	2,240
John Hamilton, Pittsburg, Pa.	8	..	..	..	..	144,505	..	99,388	..
McKinley Tin Plate Co., Pittsburg, Pa.	9	..	..	..	..	..	..	..	83,600
Norton Bros., Chicago, Ill.	10	90,661	..	..	..	..	..	..	..
N. and G. Taylor Co., Phila- delphia, Pa.	11	29,408	1,473	38,339	5,425	..	305,034	46,711	8,437

Table C.—ABSTRACT of Tin Plates and Terne Plates Produced in the United States during the Quarter ended March 31, 1892. (Date from January 1 to March 31, 1892)—continued.

Name of Manufacturer.	Voucher Number.	Tin Plates.				Terne Plates.			
		Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet	63 lbs. per 100 square feet and heavier.
		Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.
P. H. Laufman and Co., Limited, Apollo, Pa. . .	12	..	..	..	..	..	45,749	..	125,278
Pittsburg Electro-plating Co., Apollo, Pa. . .	13	..	..	..	..	..	98,000	..	..
Pittsburg Tin Plate Works, New Kensington, Pa. . .	14	..	..	..	..	..	55,590	..	28,850
Record Manufacturing Co., Conneaut, Ohio . .	15	..	117,493	..	..	..	..	..	..
The St. Louis Stamping Co., St. Louis, Mo. . .	16	18,726	334,805	61,447	51,473	..	255,433	26,927	..
The Cincinnati Corrugating Co., Piqua, Ohio . .	17	..	..	..	..	..	16,280	..	..
United States Iron and Tin Plate Manufacturing Co., Demmeler, Pa. . .	18	..	21,175	12,266	..	..	49,222	37,045	..
Wallace Banfield and Co., Limited, Irondale, Pa. . .	19	..	31,104	5,400	..	..	16,200	135	..
William T. Simpson and Co., Cincinnati, Ohio . .	20	..	..	..	..	..	..	..	995
Total . .	..	138,785	719,126	160,787	80,958	405,948	1,234,677	286,244	201,700

Table D.—ABSTRACT of Tin Plates and Terne Plates produced in the United States during the Quarter ended June 30, 1892. (Date from April to June 30, 1892.)

Name of Manufacturer.	Voucher Number.	Tin Plates.				Terne Plates.			
		Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	68 lbs. per 100 square feet and heavier.	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	68 lbs. per 100 square feet and heavier.
		Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.
A. A. Thomson and Co., New York	1	..	..	..	..	..	..	24,805	..
American Tin and Terne Plate Co., Philadelphia, Pa.	2	..	..	..	..	..	264,000	..	..
American Tin Plate Co., Elwood, Ind.	3	..	27,540	..	..	..	1,897	27,160	..
Anderson Tin Plate Co., Anderson, Ind.	4	..	..	..	83,876	..	..	25,796	51,744
Apollo Iron and Steel Co., Apollo, Pa.	5	..	..	..	..	938,929	..	81,857	..
Cincinnati Corrugating Co., Piqua, Ohio	6	..	..	..	..	..	90,372	..	..
Cleveland Tin Plate Co., Cleveland, Ohio	7	..	56,871	79,380	36,718	..	17,822	..	..
Coates and Co., Baltimore, Md.	8	..	136,000	13,030	6,230	..	..	..	..
Columbia Tin Plate Co., Piqua, Ohio	9	..	62,100	..	..	..	145,600	..	..
Griffiths and Cadwalader, Pitsburg, Pa.	10	..	..	..	..	43,000	..	..	..
John Hamilton, Pitsburg, Pa.	11	..	..	..	..	98,015	..	132,352	..

Table D.—ABSTRACT of Tin Plates and Terne Plates produced in the United States during the Quarter ended June 30, 1892. (Date from April 1 to June 30, 1892) —continued.

Name of Manufacturer.	Voucher Number.	Tin Plates.				Terne Plates.			
		Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.
		Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.
Kahn Brothers, New York, N. Y.	12	..	..	..	..	..	138,240	..	..
Keystone Tin Plate Co., Philadelphia, Pa.	13	..	..	..	..	..	64,800	..	..
Marshall Brothers and Co., Philadelphia, Pa.	14	..	114,224	13,776	1,344	..	160,765	..	45,061
Matthal Ingram and Co., Baltimore, Md.	15	..	63,502	74,498	41,125	..	..	..	..
Merchant and Co., Philadelphia, Pa.	16	..	..	..	..	445,006	77,270	44,685	21,016
McKinley Tin Plate Co., Wilkesburg, Pa.	17	..	..	..	..	..	48,000	..	..
Noron Bros., Chicago, Ill.	18	110,431	..	29,673	..	..	..	..	..
P. H. Laufman and Co., Limited, Apollo, Pa.	19	..	..	..	..	..	109,284	..	151,280
Pittsburg Electro-plating Co., Apollo, Pa.	20	..	..	..	..	..	120,540	..	..
Pittsburg Tin Plate Works, New Kensington, Pa.	21	..	..	..	..	..	..	224,000	13,500
Record Manufacturing Co., Conneaut, Ohio	22	..	168,489	189,661	..	..	..	..	..

UNITED STATES.

Table D.—ABSTRACT of Tin Plates and Terne Plates produced in the United States during the Quarter ended June 30, 1892. (Date from April 1 to June 30, 1892)—continued.

Name of Manufacturer.	Voucher Number.	Tin Plates.				Terne Plates.			
		Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.
		Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.
Scott and Co., James B., Pittsburg, Pa.	23	..	..	..	..	..	1,610	..	51,880
St. Louis Stamping Co., St. Louis, Mo.	24	135,498	832,703	102,155	58,841	..	686,770	149,503	..
United States Iron and Tin Plate Manufacturing Co., Denver, Pa.	25	..	143,400	59,946	19,491	..	249,843	58,633	..
Wallace Banfield and Co., Limited, Irondale, Ohio ..	26	5,720	222,064	156,830	26,968	..	304,972	19,710	..
Total	..	251,649	1,826,843	718,449	274,593	1,524,950	2,481,785	788,501	388,981

NOTE.—It will be seen from the tables marked A, B, C, and D, that during the first quarter of the fiscal year that Colonel Ayers reports that five firms were engaged in the manufacture of tin plates and terne plates, 11 during the second, 20 during the third, and 28 during the fourth quarter.

The following tables give statements of the production of tin plate for the fiscal year ending June 30, 1892 :—

Table E.—STATEMENT of Tin Plates and Terne Plates Produced in the United States during the Fiscal Year ended June 30, 1892.

Production during Quarter ended—	Tin Plates.				Terne Plates.			
	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Lighter than 50 lbs. per 100 square feet.	50 lbs. per 100 square feet.	62½ lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.
	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.
September 30, 1891	..	85,174	44,685	17,620	..	426,527	16,025	231,881
December 31, 1891	..	123,134	58,367	34,410	108,287	600,244	338,348	147,031
March 31, 1892	..	138,785	160,787	80,958	406,948	1,234,677	266,244	201,700
June 30, 1892	..	251,649	718,449	274,593	1,524,950	2,481,785	788,501	333,981
Total..	..	395,444	982,288	407,581	2,040,185	4,743,233	1,409,118	914,593

WASHINGTON.

Table F.—SUMMARY of Production.

Period from July 1, 1891, to June 30, 1892.	Tin Plates.			Terne Plates.		Tin and Terne Plates.
	Lighter than 63 lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	Total.	Lighter than 63 lbs. per 100 square feet.	63 lbs. per 100 square feet and heavier.	
	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	Lbs. net.	
First quarter ..	134,869	17,620	152,489	442,552	231,881	Lbs. net. 826,922
Second quarter..	181,501	34,410	215,911	1,046,879	147,031	1,409,821
Third quarter ..	1,018,698	80,858	1,099,656	1,907,869	201,700	3,209,225
Fourth quarter..	2,796,941	274,593	3,071,534	4,795,236	333,931	8,200,751
Total ..	4,132,009	407,581	4,539,590	8,192,536	914,593	13,646,719

Table G.—SUMMARY given by Colonel Ayers of Names of Manufacturers Manufacturing and Organising for the Manufacture of Tin Plates, together with the Amount of Capital Invested by them, and their Estimated Capacity.

Number.	Name and Particulars.	Estimated Investment.	Estimated Yearly Capacity.
		Dollars.	Lbs.
1	American Tin and Terne Plate Company, Philadelphia, Pa. Began manufacture January, 1892. Buy black plates. Two Leyshon tinning machines ..	25,000	2,500,000
2	American Tin Plate Company, Elwood, Ind. Building. Will begin manufacture June 1, 1892. Will make black plates. Four sets of rolls ..	50,000	4,000,000
3	Anderson Tin Plate Company, Anderson, Ind. Began manufacture December 1, 1891. Buy American black plates. Two Morewood tinning stacks ..	20,000	4,000,000
4	Apollo Iron and Steel Company, Apollo, Pa. Began manufacture quarter ending December 31, 1891. Make black plates. Two mills completed. Enlarging works. ..	50,000	4,000,000
5	Britton Rolling Mill Company, Cleveland, Ohio. Building. Will begin manufacture June 15, 1892. Will make black plates. Three sets hot rolls, necessary cold rolls, six tinning stacks ..	120,000	10,000,000
6	Blairsville Rolling Mill and Tin Plate Company, Blairsville, Pa. Building. Will begin manufacture June 1, 1892. Will make black plates. Three sets hot rolls, three sets cold rolls, six Morewood tinning machines ..	75,000	6,000,000
7	Cincinnati Corrugating Company, Piqua, Ohio. Began manufacture February 1, 1892. Buy black plates from Piqua Rolling Mill Company (allied). One Morewood tinning machine ..	2,000	750,000
8	Cleveland Tin Plate Company, Cleveland, Ohio. Began manufacture December 1, 1891. Buy American black plates. Two tinning stacks ..	15,000	3,500,000
9	Coates & Co., Baltimore, Md. Began manufacture April 15, 1892. Make black plates. Four sets hot rolls, two sets cold rolls, four sets six-roll tinning machines ..	150,000	7,000,000
10	Columbia Tin Plate Company, Piqua, Ohio. Began manufacture quarter ending March 31, 1892. Buy American black plates. Two tinning stacks ..	4,000	1,500,000
11	Corning Steel Company. Hammond, Ind. Building. Will begin manufacture September 1, 1892. Will make black plates. Four sets of rolls ..	60,000	5,000,000

Table G.—SUMMARY given by Colonel Ayers of Names of Manufacturers Manufacturing and Organising for the Manufacture of Tin Plates, &c.—continued.

Number.	Name and Particulars.	Estimated Investment.	Estimated Yearly Capacity.
		Dollars.	Lbs.
12	Cumberland Rolling Mill and Tin Plate Company, Cumberland, Md. Building. Will begin manufacture August 1, 1892. Will make black plates. Three sets of rolls	50,000	4,000,000
13	Embreville Iron and Tin Plate Company, Embreville, Tenn. Organised only ..	..	..
14	Falcon Iron and Nail Company, Niles, Ohio. Organised only	..	..
15	Griffiths and Cadwalader, Pittsburg, Pa. Began manufacture January, 1892. Buy American black plates. One tinning stack	2,000	750,000
16	Ironclad Manufacturing Company, New York, N.Y. Have been engaged a number of years in tinning sheets of heavy gauge for special manufactures; also in tinning stamped ware. Buy American black plates	..	..
17	John Hamilton, Pittsburg, Pa. Began manufacture October 1, 1891. Buy American black plates. Two tinning stacks	4,000	1,500,000
18	Keystone Tin Plate Company, Philadelphia, Pa. Began manufacture April 1, 1892. Buy American black plates. Two tinning stacks	4,000	1,500,000
19	Kieckhefer Bros. & Co., Milwaukee, Wis. Organised only	..	..
20	Lewiston Tin Plate Works, Joliet, Ill. Building. Will begin manufacture July 1, 1892. Will make black plates. Four sets of rolls	120,000	11,000,000
21	Marshall Bros. & Co., Philadelphia, Pa. Began manufacture (new works) April 15, 1892. Make black plates. Two hot rolls, two cold rolls	100,000	4,800,000
22	Matthai Ingram & Co., Baltimore, Md. Began manufacture April 1, 1892. Buy American black plates. One tinning stack	2,000	750,000
23	McDaniel and Harvey Company, Philadelphia, Pa. Organised only	..	..
24	McKinley Tin Plate Company, Pittsburg, Pa. Began manufacture January 7, 1892. Buy American black plates. Two Morewood tinning machines ..	4,000	1,500,000
25	Merchant & Co., Philadelphia, Pa. Began manufacture April 1, 1892. Buy black plates. One tinning stack	2,000	750,000
26	New Philadelphia Iron and Steel Company, New Philadelphia, Ohio. Organised only	..	..

Table G.—SUMMARY given by Colonel Ayers of Names of Manufacturers Manufacturing and Organising for the Manufacture of Tin Plates, &c.—continued.

Number.	Name and Particulars.	Estimated Investment.	Estimated Yearly Capacity.
		Dollars.	Lbs.
27	N. & G. Taylor Company, Philadelphia, Pa. Began manufacture July, 1891. Building new works. Will begin manufacture (new works) July 1, 1892. Mill being erected to make black plates. Twenty-four tinning stacks	400,000*	34,000,000
28	Norton Brothers, Chicago, Ill. Began manufacture March 1, 1892. Buy American black plates. Building new works. Will make black plates. Twenty tinning stacks	400,000	36,000,000
29	New Castle Tin Plate Company, New Castle, Pa. Building. Will begin manufacture August 1, 1892. Will make black plates. Four sets of rolls	150,000	12,000,000
30	P. H. Laufman & Co., Apollo, Pa. Began manufacture October 1, 1891. Make black plates. Three sets of rolls. Enlarging	50,000	3,000,000
31	Pioneer Tin Plate Company, Joliet, Ill. Organised only	..	..
32	Pittsburg Electro Plating Company, Apollo, Pa. Began manufacture July, 1891. Detail of plant not reported	..	..
33	Pittsburg Tin Plate Works, New Kensington, Pa. Began manufacture March 1, 1892. Buy American black plates. Two tinning stacks; enlarging, will make black plates	60,000	7,000,000
34	Record Manufacturing Company, Conneaut, Ohio. Began manufacture February 27, 1892. Buy American black plates	50,000	4,700,000
35	Savernake Tin Plate Company, Milford, Va. Organised only	..	..
36	Scott & Co., Jas. B., Pittsburg, Pa. Began manufacture quarter ending March 31, 1892. Buy American black plates. Two tinning stacks	4,000	1,500,000
37	St. Louis Stamping Company, St. Louis, Mo. Began manufacture July, 1891. Make black plates. Four sets of hot rolls, four sets of cold rolls. Ten tinning stacks. Enlarging works	400,000	23,000,000
38	Somerton Tin Plate Works, Brooklyn, N.Y. Building. Will begin manufacture June 1, 1892. Will make black plates. Six sets of hot rolls, three sets of cold rolls. Six tinning machines	250,000	14,000,000

* Including rolling mill.

Table G.—SUMMARY given by Colonel Ayers of Names of Manufacturers Manufacturing and Organising for the Manufacture of Tin Plates, &c.—continued.

Number.	Name and Particulars.	Estimated Investment.	Estimated Yearly Capacity.
		Dollars.	Lbs.
39	United States Iron and Tin Plate Manufacturing Company, Demmler, Pa. Began manufacture November, 1890. Make black plates. Eight sets of hot rolls, five sets of cold rolls, six tinning stacks. Enlarging works	450,000	10,000,000*
40	Union Tin and Terne Plate Company, Allegheny, Pa. Experimental ..	..	..
41	Wallace, Banfield & Co., Irondale, Ohio. Began manufacture February 24, 1892. Make black plates. Four sets of rolls, three tinning stacks. Enlarging works	120,000	10,000,000
42	Welsh American Tin Plate Company, Philadelphia, Pa. Organised only ..	..	..
43	Western Tin Plate Company, Joliet, Ill. Organised only	..	..
44	William P. Simpson & Co., Pittsburg, Pa. One stack. Experimental ..	..	..

* This quantity represents the capacity of tin and terne plates only, there being an additional capacity of 10,000,000 lbs. for black plates.

Criticisms on
Colonel
Ayers'
reports.
Treasury
construction
as to what
constitutes
tin plate.

These figures and summaries are official, but they have been subjected to much criticism, both in Congress and outside.

Under a Treasury ruling contained in the following letter addressed to Taylor and Company, of Philadelphia, it was held that imported black plates, if dipped in imported tin in the United States, constituted American tin plate:—

“ Treasury Department, Office of the Secretary.

“ Washington, D.C., December 1, 1891.

“ Gentlemen,—The Department is in receipt of your letter of the 16th ultimo, referring to paragraph 143, under Schedule C, of the Act of October 1, 1890, in which you ask, ‘What is understood by being produced in the United States? Will the tin and terne plates be American if made from imported black plate, or must the black plate be of American make? If the latter, will the black plates be American if rolled from imported bars or billets? Again, must such plates be coated with American tin and American lead to be American tin plates and American terne plates?’

“ In reply thereto you are informed that the Department holds that imported black plates dipped in this country for the purpose

of making tin and terne plates are included within the paragraph referred to. Black plates rolled from imported bars or billets should be similarly classified. There is no provision in law restricting the manufacturers to the use of American tin.

“Respectfully yours,

“O. L. SPAULDING,

“N. and G. Taylor Company,

“Acting Secretary.

“Importers, &c., Philadelphia, Pa.

“ (No inclosures).”

Under this ruling, as Mr. Shively, one of the Members of Congress from Indiana, stated in the House of Representatives, in the course of an admirable speech on the tin plate industry of the United States, which he delivered in June last :—“The iron or steel bars need not be American; the black plates need not be American; the tin need not be American; and the lead need not be American. Here (exhibiting it) is a sheet of the black plate ready to be coated with tin. Under this ruling by the Treasury Department this black sheet may be hot-rolled in Wales, annealed in Wales, cold-rolled in Wales, boxed and imported by one of our tin plate manufacturers into this country, dipped in imported tin, and returned to the Government as tin plate produced in the United States.”—(“Congressional Record,” vol. xxiii., p. 6445.)

Effect of this ruling.

From the date of this decision the returns of the State began to swell, and in this connection the figures showing the imports into the United States from the United Kingdom, of black sheets and plates of iron and steel, ready for tinning, from the fiscal year ending June 30, 1892, will be found interesting. I subjoin them here :—

Increased returns in consequence of this decision.

Fiscal Year Ending—					Quantity.
					Lbs.
June 30, 1889	..	..	..	..	6,246
“ 1890	..	..	..	..	2,298
“ 1891	..	..	..	..	1,339,582
“ 1892	..	..	..	..	9,844,314

Increased import of black plates ready for tinning.

It will be seen from these figures that the imports of black plates in 1889-90 were almost nominal, but in 1891, the year the McKinley Act went into effect, they leaped up to over 1,000,000 lbs., and this year they have reached nearly 10,000,000 lbs., or only about 3,500,000 lbs. less than the total amount of tin plate manufacture in this country, according to the official returns. The simultaneous increase of the imports of black plates with the increase of the manufacture of American tin plate is somewhat suggestive.

“The deadly parallel between the statistics of the importations of foreign black plates and what the Treasury Department con-

strues to be American tin-plate, amounts to a mathematical demonstration. But aside from these statistics I have positive knowledge based on careful personal investigation that the great bulk of the 5,240,830 lbs. of tin-plate and terne-plate reported to the Treasury Department is the product of a foreign industry simply coated in this country. In other words, here (exhibiting it) is a black plate. The great bulk of the 5,240,830 lbs. reported to the Government consists of these black plates, which were hot-rolled, pickled, and annealed, and cold-rolled in Wales, imported into this country, dipped into imported tin in an imported tinning pot, and brought out in the form of this (exhibiting sheet coated with tin) coated sheet, and then called by grace of the Treasury Department tin-plate 'produced in the United States.'" (Mr. Shively's speech, "Congressional Record," July 7, p. 6,446.)

Use to which
the imported
black plates
are put.

The following letter which has been published in the newspapers, shows to what use these black plates have been put :—

"Messrs. W. F. Potts, Sons & Co., Philadelphia.

"Norristown, Pa., September 24, 1892.

"Dear Sirs,

"Replying to your inquiry we beg to say our place here is not what is known as a tin-plate works in Wales, but it is rather the tinning house of a tin-plate mill, and in this respect is exactly like the majority of the tin-plate works of America, except that we are working on a larger scale than the majority of plants at present running over here in America.

"Mr. Wm. H. Edwards, the owner, continues to operate his tin-plate works in Wales, but when the final operation of tinning the steel sheets is reached the sheets are shipped to us here and finished by us by being run through patent tinning pots. Besides importing those steel sheets, cut to size and ready for tinning, we also import the pig tin and palm oil used for tinning the sheets, as none of American product can be obtained. We pay 1.65 c. per lb. duty on the steel sheets, and 45 c. on the machines. Our tinmen are experienced hands formerly engaged in the industry in Wales.

"Respectfully yours,

"(Signed) RICHARD LEWIS, Manager."

Black plates
stated by
Colonel
Ayers to be
manufactured
in the United
States.

On the other hand Colonel Ayers in his report, dated August, 1892, states that the quantity of black plates produced in the United States during the year, and which entered into the manufacture of tin-plates was by quarters as follows :—

Quarter Ending—				Quantity.
				Lbs.
September 30, 1891	..	..	..	785,547
December 31, "	..	..	..	1,200,661
March 31, 1892	..	..	..	2,182,082
June 30, 1892	..	..	..	5,178,263
Total	..	..	..	9,296,553

If these figures are correct, it is hard to discover what has become of all these black plates. As only 13,646,719 lbs. of tin-plate were, according to Colonel Ayers, produced in the United States, during the year there would remain a surplus of 5,494,148 lbs. of imported and domestic black plates lying idle. But prior to the Act of 1890 the average consumption of black plates in the United States was about 5,000 lbs., and they are but little used, except in connection with the manufacture of tin-plate. Moreover, as will be seen from the following extract from a Pittsburg newspaper, the Norristown tin works have been shut down lately, owing to the fact that they have been unable to procure black plates to work on.

"The 'American' tin works at Ernest station, near Norristown, has been 'shut down' for the past 4 days or 5 days, principally for the reason that there were no plates to work on. There are 60 workmen employed in the mill, of whom about 20 work at the tinning pots. All that could be found around the establishment yesterday were a few labourers. They have been idle since Monday.

"The last of the supply which was received from England several weeks ago was exhausted, and no more of the simon-pure article can be produced until a cargo of new supplies passes the quarantine.

"Richard Lewis, the manager of the works, was found at his home in Norristown. He said: 'There are 250 tons of plates on the way from Wales, and of course until that arrives we cannot resume operations. Had it arrived in time there would have been no occasion to stop the work.'

"These plates are dipped in the tin, and as I explained in my letter, which has been published, the act of dipping constitutes the work as done in most of the tin-plate factories in America.

"The plates are all rolled in Wales, and nothing but this tinning, as it is called, is done here. We have all of the pig-tin we want, but it is of no use until we get the plates.'

"Where do you get the pig-tin?"

"I purchase it from the importers in New York. I do not know where they get it, but I have the best of reasons to suppose that the article is imported. It comes from various parts of the world, and I am frank in saying that, although I have looked high and low for the American article, I have never seen it.

The blocks of tin down at our works are all marked "from the East Indies."

"I am willing to tell the truth about this matter, and nothing but the truth, therefore I mean exactly what I say—that the sheets, pig-tin, and palm oil are imported. Therefore, if at any time there should be a delay in the arrival of these materials we would be compelled to shut down, as we have done this week. We have 10 tinmen at work, and they are all men who were employed in the factory at Wales."

"The banner of 'American tin' which was exhibited at the Academy of Music, on the evening when General McKinley delivered his address on the tariff, and which has been displayed in one of the newspaper offices during the past week, was made at the Norristown works."

"It is the property of the Dirigo Republican Club, Ardmore, and the members of that ambitious political organisation are chagrined over the disclosures which reveal the true character of their gorgeous emblem."

Black plates mentioned by Colonel Ayers probably coarse ones.

Heavy plates should not have been admitted in Colonel Ayers' tables.

It is probable, however, that the black plates mentioned by Colonel Ayers are of the coarser, thicker kind.

Again Colonel Ayers includes in his tables 1,322,174 lbs. of tin-plate and terne-plate, heavier than 63 lbs. to the 100 square feet. This would admit galvanised roofing iron, with a touch of tin and without weight limit, which cannot rightly be termed tin-plate proper, and should not, therefore, be included in Colonel Ayers' tables.

Colonel Ayers states that out of the 13,646,719 lbs. which he gives as the total American production of tin-plate for the year, only 4,539,590 lbs. consisted of bright tin or about one-third. Of the total amount, therefore, two-thirds would appear to have consisted of terne plates, the greater part of the whole amount being imported steel sheets coated in the United States.

Report of Tin-Plate Consumers' Association.

The following is an extract from a report of the Tin-Plate Consumers' Association, dated May 2, 1892, bearing on this point:—

"From careful personal investigation we have made, out of the 19 firms named in this report as manufacturing tin-plates for the period ending March 31, 1892, 12 we find buy the imported or domestic cold, rolled, pickled, and annealed sheets cut to size ready for tinning, and their status as tin-plate manufacturers consists in running through Morewood, Edwards, Leyshon, or Thomas White tinning pots, same as used in Wales, while one of these firms claim to use a tinning pot of their own invention.

"4 make their own steel sheets, and we find the majority use the ordinary Morewood pot, on account of its cheapness as compared with cost of patent pots.

"4 only make at present any bright plates, the rest make roofing plates which present a better opportunity for profit—being more open to the advantages of careful advertising, and from the demand that exists for Government contracts.

"The price at which the product is offered as far as we can

learn is for IC 14 $\times$ 20 6½ c. per lb. for brights, and 6 dol. per box for roofing, and these prices being above the present cost of import even under the McKinley duty, probably explains why the article does not yet sell in commercial quantities, and up to the present moment does not play any part in the market."

But let it be assumed that Colonel Ayers' construction is correct, and that 13,646,719 lbs. of bonâ fide American tin-plate were manufactured during the 12 months ending June 30, 1892. The average annual consumption of tin-plate in the United States is about 678,000,000 lbs. Allowing 300 working days in the year this would give a consumption of 2,260,000 lbs. per day of 8 hours. So according to Colonel Ayers' report the American production of tin-plate and terne-plate for the 3 months ending September 30, 1891, was equal to less than 4 hours' consumption. The production for the quarter ending December 31, 1891, was less than 5 hours' consumption. The production for the quarter ending March 31, 1892, was less than 12 hours' consumption. The production for the quarter ending June 30 was less than 4 days' consumption, and the total production for the entire 12 months was about 6 days' consumption.

Amount of tin-plate if Colonel Ayers' figures are correct.

The following extracts from speeches made by Messrs. Shively and Bunting in regard to tables A, B, and C will be found interesting:—

Criticism on Tables A, B, and C.

"Of the 5 firms reported as making tin-plate and terne-plate for the first quarter 4 firms have either retired from the business or reduced their product for the second quarter. Of the 11 firms reported for the second quarter 7 firms had either retired from the business or reduced their output during the third quarter. And, sad as it may seem, a strange fatality seems to attend this statutory industry. The N. and G. Taylor Company's tin-plate works, of Philadelphia, have been destroyed by fire.

"The Coates Company's works of Baltimore have been destroyed by fire. The tin-plate attachment to the Neidringhaus factory has been destroyed by fire. The Keystone Company's factory at Philadelphia is closed and offered for sale, and the McKinley Tin-Plate Company have dissolved and retired from business by a vote of the stockholders. After the Act of 1890 has been on the statute book for 20 months the beneficiaries of that Act seem to think it necessary to cut the telegraph wires loose on Congress to announce some new tin-plate factory. These industries are coming into existence by telegraph and they go out so quickly that it would require a compound kodak to preserve a memory of them for our patriotic contemplation. (Laughter and applause.)" (Speech of Mr. Shively, "Congressional Record," July 9, p. 6551.)

"But there is a still further discrepancy in the claims set forth in this book. It is claimed that we are doubling up these tin-plate productions every quarter. That is the claim set forth by Mr. Ayers. Now, I want to show you that instead of doubling up, the manufacturers are falling out as fast as they get into line. You will find in the first summary, September 31, 1891, five concerns reporting. The first is the pioneer of the tin-plate

industry, Cronmeyer, who reports for the first quarter 139,000 lbs.; for the second quarter, 161,000 lbs.; for the third quarter only 120,000 lbs., an actual falling off for the last quarter. The Pittsburg Electro-plating Company for the first quarter reports 550,000 lbs.; for the second quarter, 255,000 lbs.; and for the third quarter only 98,000 lbs. Marshall Brothers for the first quarter reports 45,000 lbs.; for the second quarter, 259,000 lbs.; and for the third quarter, 'none.' N. and G. Taylor, 'Out of business.' That covers the first summary; and here is the second quarter, December 31, 1891: William P. Simpson, of Cincinnati, second quarter, 7,5000 lbs.; third quarter only 995 lbs. Fleming and Hamilton, second quarter, 225,000 lbs.; third quarter, 'none.' The Apollo Iron and Steel Company, Apollo, Pa., second quarter, 31,000 lbs.; third quarter, 'none.'

"Here is the McKinley Tin-Plate Company, Pittsburg, Pa. I have a little special report on that company. Here is a letter received from that company on May 26, which says: 'When you are needing American terne, we should like to submit a sample of McKinley, by box or the car load.'

"That was on May 26. I have a leaf here from R. G. Dun's Mercantile Agency, of June 4, which says: 'Pittsburg, McKinley Tin-Plate Company, limited, dissolved on vote of stockholders.' (Laughter.)

"Here is another, the Keystone Tin-Plate Company. This concern did not make any report. This also is closed, and wants to sell. The argument used is that it cost too much for imported pig-tin, and imported sheets, and imported labour, and the whole plant can be bought for 2,500 dol. (Laughter.) A further inducement is that the rent is only 50 c. a day for the whole establishment, and that they have the use of one arc light, on which the rent is 60 c. a day. (Laughter.) I know whereof I speak, because I have been there as a buyer. (Laughter.)

"Of the 5 concerns reporting for the first quarter, therefore, 4 concerns have either gone out of business or decreased their output according to the returns for the third quarter. 7 concerns out of the 11 concerns reporting for the second quarter have either gone out of business or decreased their output. These are the oldest establishments in the business. What is the significance of this to a business man? It simply means that the business is a sham." (Speech of Mr. Bunting, "Congressional Record," Vol. 159, p. 6379.)

Criticisms on
Table G.

The returns given in Table G are equally open to criticism, for many rolling mills companies which had added a tin-plate department apparently reported the value of their whole plant as the amount of their "investment" in the manufacture of tin-plate.

For instance, the Niedringhaus (St. Louis Company) Rolling Mills Company is reported by Colonel Ayers to have invested a capital of 400,000 dol., but on July 5 it was burned down, and the following report of the fire appeared in the papers:—

"The tin-plate department of the Niedringhaus Rolling

Mills was burned early this morning, entailing a loss of 15,000 dol. fully insured."

Similarly the Coates Mill at Baltimore was burned down, and the owners reported a loss of 50,000 dol., although Colonel Ayers had returned their investment at 150,000 dol.

Again, the estimated returns given in Table A on the capital invested can scarcely be very accurate.

No. 1 on the list of factories gives its investment as 25,000 dol., and estimated yearly capacity as 2,500,000 lbs.; No. 3 investment, 20,000 dol.—capacity, 4,000,000 lbs.; No. 7 investment, 2,000 dol.—capacity, 750,000 lbs. As Mr. Shively inquired in Congress:—

"If with an investment of 2,000 dol. each dollar produces 375 lbs. of tin plate, and with an investment of 20,000 dol. each dollar produces 200 lbs. of tin-plate, and with an investment of 25,000 dol. each dollar produces 100 lbs. of tin-plate; how large must the investment be that each dollar may produce no tin-plate at all?"—"Congressional Record," July 7, p. 6,450.)

But, in spite of these criticisms, it may be said that a tin plate industry has been started in this country, and the various iron and steel factories mentioned by Colonel Ayers, even if they do not possess the capital and capacity which he attributes to them, have added tin-plate attachments to their existing plant, and are making tin-plate of a certain kind in increasing quantities every quarter.

What the industry really is.

At the same time fine tin-plates do not appear to have been turned out as yet in the United States in any appreciable quantities, owing, as I am informed, to the fact that black plates of a thin gauge cannot so far be made here according to requirements either in quality or price (especially the latter), and the industry has consequently been confined to "dipping," and to the manufacture of the coarser kinds of plates for roofing.

Colonel Hayes-Sadler, Her Majesty's Consul at Chicago, in the course of an interesting report on tin-plate, dated July 15, 1892, which he has been good enough to send me, states that the following tin-plate factories exist within his Consular district:—

Reports from Her Majesty's Consuls.

"The St. Louis Stamping Company at St. Louis, Missouri, producing; Norton Brothers, of Chicago, works at Maywood, Illinois, building; the Pioneer Tin-Plate Company, Joliet, Illinois, and Kickpefer Brothers, at Milwaukee, Wisconsin, organising; others are projected, and the International Tin Refining Company, of Chicago, has been organised, but location not yet decided. All these are the growth of the McKinley Tariff.

"The St. Louis Company, who manufacture tin and enamelled iron and steel ware, are the largest concern in the country, and are regarded as the pioneers of the new industry. This concern uses in manufacture 2,000 tons of tin and terne annually. They import as much tin-plate as before the tariff, and in addition they sell at their store 1,000 tons of tin-plate a year. They are now manufacturing about 350 boxes of tin-plate per day, and expect

in a few months to be turning out more than double that quantity. They have recently purchased a large tract of land in Illinois opposite to St. Louis, on which they are going to erect steel works to manufacture steel plates for their ware and an additional mill to manufacture tin and terne plates. They do not confine themselves to the standard size of plate but make any size that is wanted. The iron they use comes chiefly from the mines in Missouri, and most of the tin is imported, though a small quantity comes from the Temescal Mines in California. The St. Louis Stamping Company enjoy the advantage of cheap fuel and coal, while the shipping facilities by rail and river are great.

"The works of Messrs. Norton are not so advanced as those at St. Louis, but great progress has been made, and the position is much improved since last year. The time has been chiefly occupied at Maywood in perfecting, erecting, and trying new machinery which has been invented to save time and labour in dipping, but in three months it is expected the works will be in operation and a considerable quantity of plate turned out. Messrs. Norton are the largest importers of tin-plate, and consume in their canning industry about 1,000 boxes a day. They expect in a few years to produce all they require for their own consumption. Good plates are made in Ohio and Pennsylvania, and thicker plates at Chicago for coarser purposes, though fine plates, it is said, can be imported at as low a price as they can be produced in this vicinity with the duty paid.

Her Majesty's Consul at Philadelphia reports that there are 20 firms producing or organising in his Consular district.

Her Majesty's Acting Consul-General in New York reports two firms organising in that State.

Her Majesty's Acting Consul at Baltimore reports one firm producing and organising in his district.

From all the above reports the prospective output appears to be much greater than the present production.

Price of Tin Plates.

The following is a list of prices given by the Tin Plate Consumers' Association for the years 1888-92.

The Senate began consideration of the McKinley Bill in July, 1890, and we begin our comparison then in the table below, being prices of IC 14 by 20 Bessemer steel coke tin at New York, compared with 1888 and 1889.

COMPARATIVE Prices of Tin Plates.

Comparative
prices.

Month.	Average Prices each Month.				
	1888.	1889.	1890.	1891.	1892.
	Dol. c.	Dol. c.	Dol. c.	Dol. c.	Dol. c.
January ...	...	4 20	4 65	5 35	5 30
February ...	...	4 20	4 80	5 45	5 29½
March ...	...	4 25	4 45	5 50	5 28
April ...	...	4 30	4 40	5 55	5 28
May ...	...	4 30	4 35	5 60	5 27
June ...	...	4 25	4 40	5 65	5 30
July ...	4 50	4 25	4 50	5 80	...
August ...	4 55	4 25	4 75	5 70	...
September ...	4 60	4 30	5 15	5 70	...
October ...	4 50	4 50	5 35	5 65	...
November ...	4 30	4 70	5 40	5 65	...
December ...	4 25	4 60	5 20	5 60	...

The following are tables taken from the same source, comparing prices for cokes in 1888 and 1891.

In order to discover to what extent prices are affected abroad, as well as in the United States, compare prices for cokes in 1891 and 1888 in both countries since the new Law went into effect (July, 1891), advancing the tax by 1½ c. per lb., or 1 dol. 28 c. per box, for IC 14 by 20 :—

Prices of coke
tins in 1888-
91.

Months.	1888.		1891.	
	Liverpool.	New York.	Liverpool.	New York.
	s. d.	Dol. c.	s. d.	Dol. c.
July	13 10½	4 50	13 4½	5 30
August	13 4½	4 85	13 3	5 70
September	13 9	4 60	13 3	5 76
October	13 6	4 50	13 1½	5 60
November	13 0	4 30	13 0	5 60
December	13 0	4 25	12 9	5 60
Average ..	13 3	4 45	13 1½	5 68½

While the French speculations in pig tin affected the cost of tin-plate in 1888 and 1889, yet the average price for the 5 years prior to the new Law shows only a slight variation even for that cause.

The following gives the average prices in Liverpool and New York since 1884 :—

Year.	Liverpool.	New York.
	s. d.	Dol. c.
1885	13 8½	4 44
1886	13 1	4 27
1887	13 3½	4 35
1888	13 6	4 42
1889	13 7	4 35
Present price, December 16, 1891	12 9	5 60
Lowest price on record, September, 1886 ..	12 6	4 18

Prices in
August,
1890-92.

The following table from the same source shows the prices for the various kinds of tin-plates in August, 1890, and August, 1892 :—

Description.	Price.	
	August, 1890.	Sept. 8, 1892.
	Dol. c.	Dol. c.
I. C. 20 × 28 charcoal terne—		
M. F.	13 75	16 00
Worcester	9 60	11 40
Dyffryn	9 10	11 10
Alyn	8 90	10 65
S. T. P.	9 00	10 75
Dean	9 00	10 80
Mansel	8 90	10 60
Abercarne	8 90	10 65
D. R. D. grade	8 80	10 55
I. C. 14 × 20 coke tin—		
Bessemer steel	4 75	5 30
I. C. 14 × 20 charcoal tin—		
Melyn grade	5 55	6 40
Calland grade	5 40	6 40
Grange grade	5 00	5 85
Allaway grade	4 85	5 70

Conclusions
from above
tables.

It will be seen from these tables that the price of tin-plates began to rise after the month of May, 1890, just before it became evident that the McKinley Bill would pass. The prices during that month was 4 dol. 35 c. a box. The price at present is about 5 dol. 30 c., showing a rise of 95 c. per box. In May, 1890, the price was 13s. a box in Liverpool. In August, 1892, it was 12s. a box, a fall of 1s., or about 24½ c., caused by the decline in the price of steel bars. The American consumer has, therefore, to pay 1 dol. 19½ c. per box more than he would have had to pay if there had been no McKinley Tariff. The old tax was 1 dol. 8 c. a box, which added to 1 dol. 19½ c. makes 2 dol. 27½ c., which the American tariff has increased the cost of tin-plates.

Decrease in
quality in tin-
plate.

One result of this increase in prices is a decrease in the quality of tin-plate used in the United State. Prior to the Act of 1890 the canning industries in this country used a quantity of IC coke tins of which 112 sheets, 14 by 20, made the standard box of 108 lbs. In order to procure the same surface of wrapper without paying the entire increase of duty on the standard box, canners have lately bought and used tin-plates of which a box of 112 sheets, 14 by 20, weighs only 65 lbs. to 100 lbs. They thus obtain an inferior wrapper for use in the canning industries.

Effect of the McKinley Act on the Canning Industry in the United States.

The increased price of tin has apparently forced packers to

curtail business, and to drive many small packers, who buy their cans ready made, out of business.

The following is a summary of the amounts paid by eight large can-making establishments for labour during the first quarter of 1891 and 1892:—

Decrease in wages paid by canning establishments.

AMOUNT Paid for Labour during the First Quarter of 1891-92.

Number.				1891.		1892.	
				Dol.	c.	Dol.	c.
1	..	..	..	7,844	40	5,091	55
2	..	..	..	9,668	00	253	50
3	..	..	..	16,800	00	11,300	00
4	..	..	..	4,084	77	2,536	62
5	..	..	..	7,640	00	4,890	00
6	..	..	..	20,000	00	9,600	00
7	..	..	..	8,280	00	3,002	21
8	..	..	..	8,259	30	3,117	31
Total	..	..	..	82,576	47	39,791	18

It will be seen from these figures that 42,789 dol. 29 c. less wages were paid in 1892 than in 1891, a very ominous showing.

Prices of canned goods do not appear to have advanced in proportion to the rise in the price of tin plates, a fact which is, I believe, to be attributed to over production. In some cases they are higher, but the general effect has been to maintain them rather than raise them.

Prices of canned goods maintained but not advanced.

Colonel Hayes-Sadler in the report above-mentioned, states: "With regard to the packers the increased duty is scarcely felt on the goods they export, as they receive the drawback of 99 per cent. on the imported tin. But the full force of the increased duty is felt on their products for home consumption. Messrs. Armour and Company, the largest packing and canning house in the world, make their own cans from imported plate, using about 100,000 boxes or more a year, and export one-third of the tin plates they utilise, so that on two-thirds of their business they have to stand the full advance of the duty and the average cost of their cans or tin plates is so much the higher."

I append at the end of this report sample interviews with consumers of tin plate and sample letters from them in regard to the effect of the duty on the canning industries, which have been published by the Tin Plate Consumers' Association. It will be seen from these that the general effect of the duty has been damaging to canners.

General effect of Act damaging to canning industry.

Importation of Tin Plates into the United States.

TABLE showing the Importations of Tin Plates into the United States for each Month from July, 1889, to the end of June, 1891.

Months.	1889-90.		1890-91.	
	Quantity.	Value.	Quantity.	Value.
	Lbs.	Dollars.	Lbs.	Dollars.
July	67,869,420	1,990,235	73,908,555	2,277,942
August	63,595,062	1,861,677	64,246,011	1,992,128
September	48,927,029	1,441,027	69,883,100	2,180,791
October	66,608,789	1,943,631	76,955,185	2,393,704
November	51,956,481	1,557,222	59,053,531	2,042,459
December	49,367,342	1,537,420	64,151,840	2,191,196
January	54,809,779	1,722,756	52,942,064	1,825,081
February	54,055,297	1,764,088	66,764,468	2,356,853
March	48,609,428	1,561,774	101,174,509	3,646,509
April	58,077,974	1,734,149	92,363,482	3,392,274
May	46,914,081	1,511,525	119,442,015	4,431,364
June	74,270,298	2,297,696	197,604,333	7,016,619
Total	680,060,925	20,928,150	1,036,489,074	35,746,920

TABLE showing the Importation into the United States of Tin Plates, Terne Plates, and Taggers Tin during the Fiscal Year ending June 30, 1892:—

Months.	Quantity.	Value.
	Lbs.	Dollars.
1891—		
July.. ..	12,561,141	425,933
August	13,993,524	434,850
September	17,861,839	545,791
October	20,054,856	633,308
November	18,511,212	553,347
December	21,181,848	638,376
1892—		
January	30,612,209	893,754
February	42,338,245	1,240,571
March	67,498,960	1,940,080
April	70,489,102	1,973,840
May.. ..	48,804,395	1,391,810
June	58,268,871	1,643,902
Total 12 months.. ..	422,176,202	12,315,562

Conclusions
from above
tables.

These tables, which have kindly been furnished me by the Bureau of Statistics in Washington, show that about 1,036,489,074 lbs. of tin plate were imported during the year ending June 30, 1891, a surplus of about 358,000,000 lbs. over the average annual importations. Most of this excess falls within the 6 months ending June 30, the day before the increased duty went into effect, and was caused by the desire of importers to anticipate the higher tariff. The market, consequently, became overloaded, and

for a while, as will be observed, the imports fell off. The surplus stock, however, gradually became worked off, and arrivals of tin plate began to increase again, the imports for the last 6 months of the fiscal year amounting to 318,000,000 lbs., as against 104,000,000 lbs. during the first 6 months. As I have stated before, the average consumption of tin plates in the United States is about 678,000,000 lbs. Add to the surplus 358,000,000 lbs. which were imported in 1891 in anticipation of the higher tariff on the imports for the present year, and it will be found that the average has not only been maintained this year but increased. The imports of the month of July, 1892, were 66,575,730 lbs. If this average is sustained the total imports for the fiscal year ending June 30, 1893, will amount to over 800,000,000 lbs.

These figures are significant, for they show that not only has the McKinley Bill not checked the imports of tin plate into the United States, but that the average imports have increased since it was enacted. Imports not checked by the Act.

The following table shows the quantity of imported tin-plates entering into the manufacture of articles exported for the benefit of drawback with the amount of drawback thereon from 1884 to 1891 :— Drawback on exports of tin-plate.

Year ending June 30.					Quantity.	Drawback.	
					Lbs.	Dol.	c.
1884	..	..	..	..	97,415,089	974,150	89
1885	..	..	..	..	127,125,903	1,271,259	03
1886	..	..	..	..	136,539,316	1,365,393	16
1887	..	..	..	..	123,203,627	1,232,036	27
1888	..	..	..	..	108,271,542	1,082,715	42
1889	..	..	..	..	166,087,740	1,660,877	40
1890	..	..	..	..	150,112,007	1,507,120	07
1891	..	..	..	..	149,599,649	1,495,996	49

The quantity exported for the fiscal year ending June 30, 1892, was, according to Colonel Ayers, 119,928,083 lbs.

The drawback clause would seem rather incongruous in a protectionist measure as it offers a premium on the use of imported plates. Drawback incongruous.

The following Bill, introduced by Mr. Shively, abolishing the duty on tin-plate, was passed in the House of Representatives in June last by a large majority :— abolishing duties on tin plate.

“A Bill (H.R. 8033) to reduce the duty on tin-plate, terne-plate, and taggers tin, and to repeal para. 209 of Sec. 1 of an Act entitled ‘An Act to reduce the revenues and for other purposes.’

“Be it enacted, &c., That on and after October 1, 1892, all iron or steel sheets or plates or taggers iron coated with pure tin, or with tin and lead, or with any mixture of which these metals are a component part, by dipping or any other process, and commercially known as tin-plate, terne-plate, or taggers tin, shall pay 1 c. per lb. duty.

"Sec. 2. That on and after October 1, 1894, tin-plate, terne-plate, and taggers tin shall be admitted free of duty.

"Sec. 3. That para. 209 of sec. 1 of an Act entitled 'An Act to reduce the revenue, and for other purposes,' approved October 1, 1890, together with the proviso pertaining thereto, is hereby repealed.

"Sec. 4. That on all original and unbroken packages of tin-plate, terne-plate, and taggers tin held by importers, dealers, or consumers at the time sec. 1 of this Act goes into effect shall be allowed a rebate on the same of 1 dol. 2 c. per lb., and that on all unbroken packages of tin-plate, terne-plate, and taggers tin held by importers, dealers, or consumers when sec. 2 of this Act goes into effect shall be allowed a rebate or drawback of 1 c. per lb.: Provided, That the application for such rebate or drawback shall be made within 60 days after the taking effect of sec. 1 and sec. 2, respectively, of this Act, and under such regulations and in such form as shall be prescribed by the Secretary of the Treasury, who shall adopt such regulations and furnish such forms as may be necessary for the purposes of this Act.

"Sec. 5. That there shall be allowed on imported tin-plate used in the manufacture of cans, boxes, packages, and all articles of tinware exported, either empty or filled with domestic products, a drawback equal to the duty paid on such tin-plate, terne-plate, and taggers tin, less 5 per cent. of such duty, which shall be retained for the use of the Government of the United States.

"Sec. 6. That all Acts or parts of Acts so far as the same are inconsistent herewith are hereby repealed."

Unlikely to
pass Senate.

It is now before the Senate, where it is not likely to pass unless the political complexion of that body is changed at the forthcoming elections.

Tin Mines in the United States.

Paragraph 209 of the McKinley Act provided that "On and after July 1, 1893, there shall be imposed and paid upon cassiterite, or black oxide of tin, and upon bar-tin, block-tin, and pig-tin, a duty of 4 c. per 1 lb.: Provided, that unless it shall be made to appear to the satisfaction of the President of the United States (who shall make known the fact by proclamation) that the product of the mines of the United States shall have exceeded 5,000 tons of cassiterite, bar-tin, block-tin, and pig-tin in any one year prior to July 1, 1895, then all imported cassiterite, bar-tin, block-tin, and pig-tin shall after July 1, 1895, be admitted free of duty."

Temescal
Mines.

There are three tin mines in which operations are in progress in the United States: the Temescal mines in San Bernardino County, California; the Harvey Peak Mines in South Dakota; and the Cash Mine in Virginia. The Temescal Mines, which are owned by an English company, produced about 120 tons of pig-tin during the fiscal year ending June 30, 1892, and this tin has

been put on the market in small quantities. But at the beginning of this month the mines were shut down, and according to the newspapers are unlikely to open again.

Mr. Donohoe, Her Majesty's Consul at San Francisco, writing Mr. Donohoe's opinion of Temescal Mines. on this subject under date of June 15, 1892, says:—"The San Jacinto (Temescal) Tin Mines did produce about 20 tons per month of ingot tin which is shipped to the Eastern States, but the production has, I am informed, considerably decreased. Unless the output can be increased the undertaking is not likely to prove remunerative, as the present production does not pay the mining expenses. The tin seems to be contained in pockets instead of in a vein, which miners consider a very unreliable mode of deposit."

The output of the Harvey Peak Mines, which are also owned by Englishmen, and of the Cash Mine is, I believe, prospective. Harvey Peak Mine. Cash Mine.

At present, therefore, there appears to be little likelihood of the necessary 5,000 tons being produced in one year before 1895, and the only result of the Act has been to increase the price of pig-tin in anticipation of the duty coming into force. Price of pig-tin increased.

It will be seen from this report that:—

Conclusions.

1. The promises of the promoters of the Tin-plate Schedule of the McKinley Act have not been fulfilled.

2. That little American tin-plate of any kind has hitherto been offered on the market commercially.

3. That, if Colonel Ayers' figures are correct, and 13,000,000 lbs. odd of tin-plate have been manufactured in the United States, the American consumer has had to pay, roughly speaking, about 1 dol. in duties for every 1 lb. manufactured.

4. That the McKinley Act has advanced the price of tin-plate about 1 dol. per box.

5. That it has damaged the canning industries of the United States.

6. That it has stimulated the importations of black plates ready for tinning.

7. That imports of tin-plate from the United Kingdom have not in reality fallen off, as has been stated, but even show signs of increasing.

Notwithstanding these facts a new industry in the manufacture of tin-plates, as I have before stated, may said to have been started in the United States. It may be looked upon as an experiment, it is yet in its infancy, and it is at present almost entirely confined to "dipping" imported sheets. Still coarser kinds of tin-plate of bonâ fide American manufacture are being turned out, and there appears to be no reason why the present difficulties, as to price and quality, in the construction of fine black plates ready for tinning, should not be overcome in course of time, provided the present duty be maintained. All the raw materials necessary in the production of tin-plate can be obtained. The rolling mills in the United States are now producing nearly 250,000 tons per year of the heavier kinds of sheet iron and

steel, and it surely will not be long before American ingenuity, aided by a bounty of $2\frac{2}{10}$ c. per lb., will discover the mechanical process necessary for rolling at a profitable price sheets of a thinner gauge and a better quality, such as are required for the manufacture of fine tin-plates. But whether the industry prove to be a success or merely an experiment it will, I venture to predict, be long before more tin-plate is produced than will be absorbed by the constantly increasing consumption in this country, and it will probably be years before the English product will be seriously affected by the McKinley Act or by the new industry under the best of circumstances.

APPENDIX.

I.—SAMPLE INTERVIEWS WITH CONSUMERS OF TIN-PLATE.

Interview of F. G. Ehle & Co., Buffalo, N.Y.

"What has been the effect of the McKinley Law upon your business?" asked a representative of the "Courier" of Mr. Ehle yesterday.

"First," Mr. Ehle answered, "it has caused a loss to me of from 60 to 65 per cent. on the tin-plate which I use for raw material. The duty on tin-plate amounts to about 40 per cent. Then for about two months before the tin-plate duty of 2¹ c. per pound went into effect last July importers in this country, to take advantage of the lower rate of duty of 1 c. per lb. then existing, ordered vast quantities of tin-plate from the English manufacturers, who filled the orders with such speed that they turned out a product so imperfect as to increase the waste to the manufacturers 20 to 25 per cent.

"Secondly," continued Mr. Ehle, "it has ruined my export trade. I have samples of my work in different places all over Europe and in other foreign countries, and have a great many opportunities to fill orders, but I can't do it. Why? Because under our tariff laws we are not entitled to a rebate on small orders. You see there is a provision which entitles a manufacturer who exports under a single order manufactured goods made from imported raw material in so large a quantity that the duty on the raw material entering into that order amounts to 50 dol. or more, a rebate of 99 per cent. On smaller shipments no drawback at all is allowed. I am not entitled to rebate on my foreign shipments unless the order is worth, well, about 400 dol. Now, what foreign jobber wants 400 dol. worth of one kind of dinner pails at once? Very few, and they cannot be asked to buy in large quantities just to accommodate the manufacturer. The consequence is we cannot afford to fill the smaller and by far the majority of the orders.

"Besides," said Mr. Ehle, "there is a little trick about this rebate which works a great hardship to the manufacturer, even when he is entitled to a rebate. On the 20th of last month we wrote to the custom-house officers here in Buffalo asking them to correct what we supposed was a mistake they had made. We had previously shipped to Canada a quantity of dinner pails, on which we had used up 6,317 lbs. of tin-plate imported under the

1 per cent. duty. The total duty, as we figured and paid it, was 63 dol. 17 c. We asked for a rebate of 99 per cent., which was 62 dol. 53 c. The custom-house officials sent us a check for 34 dol. 74 c. We asked them to correct the mistake, and though they gave no satisfactory explanation, we learned that they deducted from our claim the material wasted in the manufacture of those pails, although we had paid the duty on that waste material. The result is we received 27 dol. 79 c. less than we think, in common justice, we should have had. That was under the old duty of 1 c. per lb. What must it be under the present duty of $2\frac{1}{2}$ c. per lb.? Of course we cannot export under such circumstances."

"Why don't you buy the American tin-plate?" Mr. Ehle was asked.

"We can't get it," he replied. "We have written a number of letters inquiring about it, and out of them all we have received four samples. One concern sent us a sample which is really of a very good quality, and offered to fill an order, but at a price which it was simply impossible to pay."

"Have you imported any tin-plate since the $2\frac{1}{2}$ c. duty went into effect?"

"Bless you, yes. Last month alone we used about 25 tons of tin-plate, imported under the present duty, and we are a small concern. On that quantity of 25 tons we paid a duty of 44 dol. per ton, or, in all 1,100 dol. Taking the year through, we import on an average about 19 tons a month. Figure that up, and you see we pay about 10,032 dol. a year duty on tin-plate. That means that 40 or 45 hands in my employ have to earn 10,000 dol. a year. Wouldn't it be better if I could have that to divide with my employés?"

Asked if protection stimulates inventions, Mr. Ehle said emphatically:—

"No; it stimulates monopoly. It drives men with small capital out of business and gives to the wealthy manufacturer an additional advantage. He can afford to spend out of hand large sums of money for inventions and new machinery. The tariff gives him an advantage over his poorer competitor in that respect, just as it does when it gives him, on his large shipments to foreign countries, a rebate of 99 per cent., while the poor man, trying to fill small orders, gets no rebate at all. Besides, would not invention be better stimulated without a tariff, when manufacturers would have so many orders to fill that they could not get hands enough to do the work without improved machinery? I know that with tin-plate free of duty I should employ at least 145 hands instead of 45.

"My export trade would outstrip my home trade, for I know what I could do in foreign markets if the tariff allowed me to. Foreign countries can manufacture tin-plate, the raw material, with their natural resources and with unskilled labour. But it requires skilled labour and machinery to make tin-ware, and in these things the foreigners cannot compete with us. Then why

should we not get our tin-plate of them and sell them the products we manufacture from it? They have to buy our agricultural products, too. But they cannot buy without sending us back something in return. They cannot compete with us in products manufactured with machinery and skilled labour employed in connection with it. But they do excel us in what we call hand labour, such as is used in laces and in the arts. Now, why should we not buy of them our laces and similar fabrics and products of the arts, and sell them our dinner pails, all tin-ware, our waggon, and agricultural implements, &c.? The more we would exchange with them the better we would feel toward them, and where we bought of them what they could furnish cheaper and better than anyone in this country could, we would pay for with goods which we could make better and cheaper than they, and all be gainers."

California Packers.

Sidney Smith, president of the Canning and Packing Company, which is one of the largest concerns in that business on the coast, is another Republican who is in no uncertain frame of mind about the practical results of the McKinley tariff on tin-plate.

"There has been a great deal of nonsense written and printed in some of the Republican newspapers about tin, I am sorry to say," said Mr. Smith. "In the first place, it has been taken for granted that the manufacturers in Wales have always combined to keep up prices as high as possible, whereas no such combination ever existed. On the other hand, there has always been such rivalry and competition among them that prices went down to a barely living basis, and although several attempts were made to effect something like a trust among the Welsh manufacturers, it was never accomplished. The United States always got Welsh tin-plate at the very lowest prices for which it could be produced until the McKinley Bill was talked about."

The firm of W. F. Beck and Co. is one of the largest engaged in the canning and packing business on the Pacific coast. W. F. Beck, the head of the firm, is a Republican in politics, but still he has not discovered any beauty in the McKinley Tariff on tin-plate.

"That tariff is an outrage and an injustice to everybody," said Mr. Beck. "It has increased the price of 2½-lb. cans just 7½ c. a dozen. A box of tin-plate cuts 268 cans, less waste—enough for 11 cases of goods."

Effect on the price of Salmon.

H. A. Williams, of Williams, Brown and Co., is a staunch Republican, who fails, however, to appreciate the beneficence of the excessive tariff on tin-plate. In a general way he thought it

had been a great detriment to the canning business, which is one of the important industries of the coast.

"Our firm uses about 15,000 boxes of tin-plate a year," said Mr. Williams. "The duty is now 2 dol. 20 c. per 100 lbs., which makes a difference to us, our customers, and the consumers of at least 20,000 dol. a year.

"Then, again, take the salmon canning business. All the firms in that trade have combined this year into what is called the Alaska Packers' Association. They will pack only about one-half of the usual quantity of fish this year, but still they will use 50,000 boxes of tin-plate, and when you figure up the amount of the import duty you will find that it makes a difference of 75,000 dol. in the season's pack. Somebody must pay that difference. In my judgment the McKinley tariff on tin-plate is unreasonable, injurious, and it should be repealed."

S. L. Goldstein, of Fontana and Company, a firm that uses about 5,000,000 tin cans a year, said:—

"We do not manufacture our own cans. We buy them all, and they cost us about 30 dol per 1,000. If it were not for the McKinley tariff I think it is probable that we could get our cans for at least 2 dol. 50 c. less, and that, you see, would make a difference of 12,500 dol. a year. Naturally, I do not think the McKinley tariff on tin-plate is a desirable thing."

A. F. Tenney, secretary of the Lusk Canning Company, said:—

"The whole story of the effect of the McKinley tariff on tin-plate is told in a very few words. Before that duty was imposed we made our 2½-lb. cans for 27 dol. 50 c. per 1,000, and now it costs 30 dol. The difference of 2 dol. 50 c. on a season's pack amounts to a good deal of money, and the people have to pay it, of course.

"The McKinley tariff on tin-plate is an outrage on the people of the United States."

A few Sample Letters received by Robert Ganz, Secretary of the Tin Plate Consumers' Association, New York, from Consumers of Tin Plate.

Dear Sir,

Brooklyn, N.Y., April 29, 1892.

In reply to your inquiry as to the effect of the McKinley tariff on our business, it has been exceedingly detrimental. We had made a speciality of selling in foreign countries a line of tin goods patented in the United States only. We had spent considerable money in introducing these goods. The English have now taken up the manufacture of this entire line, and as their tin costs them, including scrap and breakage, about 4 dol. per box, and ours 10 dol. 50 c. per box, scrap, breakage, and tariff, they

can use the same tools as we do, pay the same for labour, and yet beat us in every market in the world. We have tried by reduction in price of labour to meet this difference, but in vain. The English are now reaping the benefit of this line of goods we introduced into Europe. We have decided not to devote our time, ingenuity, and money to any more outside business, and if we had not taken up a domestic line should have been compelled to cut our pay roll fully one-third.

Yours respectfully,
E. R. DEVERALL,
D. P. MANUFACTURING CO.

Dear Sir,

Baltimore, Md., April 22, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been to add the duty to cost of the goods and necessarily we have sold at a higher price than if there had been no increase.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had neither to increase nor decrease our help.

Dear Sir,

Baltimore, Md., May 13, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say we have not noticed much change, except that business has become slow and uncertain since the new tariff Act went into effect. The only sufferers, to our knowledge, as yet, are the producers of raw materials, the oysterman and farmer. We have been compelled to assess the value of the raw products used in our industry with the increased duty paid upon tin plates used in our manufacture.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have not had to increase or decrease our help.

Dear Sir,

Baltimore, Md., April 25, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been quite a falling-off in the demand for cans, owing to the increased duties which have advanced the cost of tin plates about 1 dol. 30 c. per box.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help about one-fifth.

Dear Sir,

Easton, Md., April 25, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that we find since the McKinley Bill went into effect, July 1, 1890, the

same amount of tin is costing us 5,000 dol. more than it did prior to that date. It is simply an extra tax on the packer, his goods cannot be advanced, hence the margin on our business has been taken from us, for a political experiment and is driving out one of the most important industries of our country; packers of fruits and vegetables.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to neither increase nor decrease our help.

Dear Sir,

Chicago, Ill., April 23, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been a decrease in our sales—a decrease of $12\frac{1}{2}$ per cent., July 1, 1891, to January 1, 1892, in comparison to the same period in 1890.

Dear Sir,

Philadelphia, Pa., April 22, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been to advance the price of tin about 1 dol. per box with the same cost of packing, and goods selling at same price as before the increase of duty.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to increase or decrease our help none.

Dear Sir,

Detroit, Mich., April 23, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been: In previous years our business increased about 50 per cent. each year, and last year only about 15 per cent., entirely owing to the increase of prices made necessary by the duties.

Dear Sir,

Adrian, Mich., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been to increase the cost of No. 3 cans, the size most used by us, an average of 60 c. per 100, and other sizes in proportion. We are not extensive packers, but the cans used by us last season cost over 4,000 dol. more than the same quantity would have cost in 1889. This loss must be borne by us or by the producer of fruits and vegetables, or both. The canning industries have been greatly crippled by the increase of duty on tin plate.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have used about the same help as before, but paid less wages per day.

Dear Sir,

San José, Cal., April 26, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been to increase the cost of material in our business since increased tariff was put on to 26,965 dol. per annum.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have not had to increase or decrease our help.

Dear Sir,

Indianapolis, Ind., April 25, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the effect has been to reduce our profits to such a narrow margin as to cause the desire to have our capital invested in some other enterprise or abandon our present business altogether.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help many hands.

Dear Sir,

Louisville, April 25, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to state that the effect has been to decrease the sales on terne-plates, many persons refusing to pay the advanced prices due to the tariff.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help 5 per cent.

Dear Sir,

New Orleans, La., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the effect has been a large decrease in the demand for terne-plates.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help about 20 per cent.

Dear Sir,

Greenwich, N.J., April 23, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the effect has been very much against us, forcing us to use old machinery instead of new, as we cannot buy improved machinery, as our profits at present will not admit it. We are running a smaller force, and will have to put up less goods than formerly.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we had to decrease our help three hands.

Dear Sir,

New Haven, Conn., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the

effect has been to add to the prices of our manufactures from tin-plate all the advance in the cost of the tin-plate. If the consumers of our goods are willing to pay, and will continue to buy full quantity at the advanced price, we will be satisfied.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have so far neither increased nor decreased our help.

Dear Sir,

Danbury, Conn., May 11, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the effect has been to decrease the profits in roofing. While we have increased the price of roofing to the consumer, the price has not been advanced to the extent that the prices of terne-plates would warrant.

Dear Sir,

Odessa, Del., May 13, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the effect has been to increase the cost of the package, requiring more capital to do the usual amount of business, and entailing a heavier loss in the business on all goods carried over from last fall in consequence of the decline in prices this spring.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we are running with our usual force, but will wind up making cans from four weeks to six weeks earlier than usual.

Dear Sir,

North Berwick, Me., May 2, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the effect has been a very heavy added tax on our business, aside from which no effect appears.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that it has caused no change.

Dear Sir,

Bridgeton, Me., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the effect has been to cut down our profits and lessen our sales. We find it impossible to get any more for our goods than formerly, and buyers are constantly cutting prices.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help about 25 hands.

Dear Sir,

Boston, Mass., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin-plates has had on our business, we beg to say that the

effect has been that we have packed in our East Boston factory in 1890, 56,000 cases; packed in our East Boston factory in 1891, 35,345 cases; falling-off, 20,655 cases.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help 25 hands.

Dear Sir,

Boston, Mass., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been, we have had to get a proportionate increased price for our goods to offset the increased cost of tin plate. This has decreased consumption to a certain extent, making business dull. This means not so much a decrease of help as it does lower wages, owing to less length of time employed.

Dear Sir,

Cambridgeport, Mass., April 22, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been to increase the cost 1 dol. per box, instead of a natural decrease of some 30 c. per box. This has prevented those engaged in our line from making such a drop in prices as has occurred in almost every other line of business. Prices have, therefore, been too high in proportion to other prices, with the result of a decided check to the business. Not nearly so much business in our line is done as there should be. Results: fewer hands employed, consumers paying more than they ought, manufacturers not making fair profits.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help seven hands.

Dear Sir,

Worcester, Mass., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been that we are doing less business.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help three hands.

Dear Sir,

Arlington, Nebr., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect of the duty has been prejudicial to us, as we are out a good many dollars on account of the tariff, as we have to sell for less money and goods cost us more.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help ten hands.

Dear Sir,

Salem, Ohio, April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been that we have substituted galvanised iron for tin in consequence of the increased cost of the latter.

Dear Sir,

Belpre, Ohio, April 25, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been that the trade in canned goods (our business) since July 1, 1891, has been very dull; prices low. How far this condition was brought about by the tariff on tin plates we are unable to say, except that the plates cost more without a corresponding increase in prices obtained.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that our can shop is shut until business revives.

Dear Sir,

Columbus, Ohio, April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been to work one year without any profit to signify; consumers refuse to pay any more for goods, the middlemen and manufacturers pay the increased duty; am trying to get more now, but only selling one-half usual amount; one-half number hands.

Dear Sir,

—, May 6, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been that my force is very near one-half less, and not on full time with what men I have employed.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help 13 hands.

Dear Sir,

Fairport, N.Y., April, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been: We used 4,800 boxes last year. Payment of McKinley duty required additional capital. In some branches increased cost of our goods compelled us to cut down wages of labourers to meet popular prices. In making baking powder cans, increased cost of article and unwillingness on the part of our customers to pay increased price caused us to lose the business of some of the best of our customers. After two or three months of experimenting with others, they returned to us, having learned that we were not trying to rob them, but were, like others, only asking a fair price on the basis of the Government making us pay heavier taxes for the privilege of doing

business. We have been heavy exporters of canned goods, but we fear that we will have to give up or greatly reduce our export trade.

In the English and Scotch markets especially, Canada is selling at less than goods cost us. Canada pays no duty. Rebate does not place us on an equality. On 50 cases of pears, rebate would not pay expenses of obtaining it. We pay duty on a full sheet of tin. The rebate does not cover waste in cutting round blanks. On swells at factory we lose extra duty on tin as well as goods.

We have neither increased or decreased our hands. We have to plan to do business with an insufficient force.

There are two canning factories here and not enough labour for both in busy season. We depend largely on female labour, and cannot obtain sufficient.

Dear Sir,

Buffalo, N.Y., April 22, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been—decreasing consumption, cheaper labour, and smaller margins.

Replying to your inquiry whether it has increased or decreased the number of hands employed in our business, we would state that we have had to decrease our help 15 per cent.

Dear Sir,

Syracuse, N.Y., April 22, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been to cut down my trade in roofing tin more than one-half, making a considerable loss to my income, and more than this, has forced a number of my smaller customers to retire from the business and to seek other occupation. I am not able to purchase roofing tin of American manufacture at marketable prices, only high-priced goods being offered, too high for the average consumer.

Dear Sir,

New York, April 22, 1892.

Replying to your inquiry as to what effect the increased tariff on tin plates has had on our business, we beg to say that the effect has been to demoralise the trade in prices, and cannot get any advance on the goods owing to a lighter weight tin being used to get down to old figures, 85 lbs. and 95 lbs. tin, in place of 108 lbs. Goods are made so much inferior.

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FOREIGN OFFICE.

1893.

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COMMERCIAL INTEREST.

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REPORT ON THE

WORKING OF THE SUGAR BOUNTY CLAUSE
OF THE McKINLEY ACT, WITH STATISTICS
RESPECTING THE CONSUMPTION, &c., OF
SUGAR IN THE UNITED STATES FOR THE
YEAR ENDING JUNE 30, 1892.

*Presented to both Houses of Parliament by Command of Her Majesty,
MAY, 1893.*

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UNITED STATES.

WASHINGTON.

Sir J. Pauncefote to the Earl of Rosebery.

My Lord,

Washington, March 30, 1893.

I HAVE the honour to enclose a letter which I have received from Mr. Michael Herbert, First Secretary in this Legation, transmitting a Report which he has drawn up in regard to the Working of the Sugar Bounty Clause of the McKinley Act and the Consumption of Sugar in the United States for the Fiscal Year ending June 30, 1892.

I have, &c.

(Signed) JULIAN PAUNCEFOTE.

The Hon. Michael H. Herbert to Sir J. Pauncefote.

Sir,

Washington, March 30, 1893.

I HAVE the honour to transmit, herewith, a Report which I have drawn up on the Working of the Sugar Bounty Clause of the McKinley Act and the Consumption of Sugar in the United States for the Fiscal Year ending June 30, 1892.

The information contained in this Report is derived from the Report of the United States Commission of Internal Revenue and from publications issued by the Bureau of Statistics in Washington.

I am, &c.

(Signed) MICHAEL H. HERBERT.

Report on the Working of the Sugar Bounty Clause of the McKinley Act, together with Statistics showing the Consumption of Sugar in the United States, for the Fiscal Year ending June 30, 1892.

ABSTRACT of Contents.

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(1522)	A 2

Bounty
Clauses of
McKinley
Act.

Sec. 231, Sec. 232, and Sec. 233 of the McKinley Act, provided as follows:—

"231. That on and after July 1, 1891, and until July 1, 1905, there shall be paid, from any moneys in the Treasury not otherwise appropriated, under the provisions of Sec. 3,689 of the revised Statutes, to the producer of sugar testing not less than 90 degrees by the polariscope, from beets, sorghum, or sugar-cane grown within the United States, or from maple sap produced within the United States, a bounty of 2 c. per lb.; and upon such sugar testing less than 90 degrees by the polariscope, and not less than 80 degrees, a bounty of 1½ c. per lb., under such rules and regulations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe.

"232. The producer of said sugar to be entitled to said bounty shall have first filed prior to July 1 of each year with the Commissioner of Internal Revenue a notice of the place of production, with a general description of the machinery and methods to be employed by him, with an estimate of the amount of sugar proposed to be produced in the current or next ensuing year, including the number of maple trees to be tapped, and an application for a license to so produce, to be accompanied by a bond in a penalty, and with sureties to be approved by the Commissioner of Internal Revenue, conditioned that he will faithfully observe all rules and regulations that shall be prescribed for such manufacture and production of sugar.

"233. The Commissioner of Internal Revenue, upon receiving the application and bond hereinbefore provided for, shall issue to the applicant a license to produce sugar from sorghum, beets, or sugar-cane grown within the United States, or from maple sap produced within the United States at the place and with the machinery and by the methods described in the application; but said license shall not extend beyond 1 year from the date thereof."

Number of
producers
licensed.

The number of producers licensed for the first year after the law went into effect was as follows:—

Description.				Number.
Producers of sugar from sugar-cane	..	..	..	727
" " beets	..	..	..	7
" " sorghum	..	..	..	6
" " maple sap	..	..	..	4,240
Total	..	..	..	4,980

Number of
licenses
issued.

The number of licenses issued in each State, and the number of applications which were disallowed, will be found in the following table:—

The increase is in the number of producers of maple sugar, the number of producers of sugar from sugar-cane having fallen off.

Amount of
bounty paid
during fiscal
year ending
June 30, 1892

The sum of 7,342,077 dol. (1,468,415L) was paid by the Government as bounty during the past fiscal year and was distributed as follows:—

Description.	Amount.
	Dollars.
1. Bounty paid on cane sugar—	
Louisiana	6,882,589·83
Texas	176,301·73
Florida	18,233·79
Mississippi	190·86
Total	7,077,316·21
2. Bounty paid on beet sugar—	
Nebraska, two factories	54,690·00
Utah, one factory	21,898·00
California, three factories	163,510·56
Total, six factories	240,098·56
3. Bounty paid on sorghum sugar—	
Kansas, three factories	22,197·28
4. Bounty paid on maple sugar—	
New York	1,151·15
Massachusetts	121·58
Ohio	1,050·86
Pennsylvania	142·15
Total	2,465·74

RECAPITULATION.

Description.	Amount.
	Dollars.
Total on cane sugar	7,077,316·21
„ beet sugar	240,098·56
„ sorghum sugar	22,197·28
„ maple sugar	2,465·74
Total	7,342,077·79

Number of
producers in
each State.

The following table shows the number of producers in each State who received bounty and the amount paid:—

States.	Number of producers receiving bounty.	Material.	Amount.
			Dollars.
Louisiana	619	Cane ..	6,882,589.83
Texas	14	" ..	176,301.73
Florida	11	" ..	18,233.79
Mississippi	1	" ..	180.86
California	3	Beet ..	163,510.56
Nebraska	2	" ..	54,690.00
Utah	1	" ..	21,898.00
Kansas	3	Sorghum ..	22,197.28
Massachusetts	5	Maple ..	121.58
New York	51	" ..	1,151.15
Pennsylvania	8	" ..	142.15
Ohio	39	" ..	1,050.86
Total	757		7,342,077.79

RECAPITULATION.

Description.	Number.	Amount.
		Dollars.
States and territories in which receiving bounty reside	12	..
Producers receiving bounty	757	..
Total amount paid	..	7,342,077.79

The amount of sugar produced during the last fiscal year upon which bounty was paid was as follows:—

Description.	Quantity.	Total.
	Lbs.	Lbs.
Cane sugar—		
Louisiana	354,901,053	
Mississippi	9,543	
Florida	929,248	
Texas	8,989,567	364,829,411
Beet sugar—		
California	8,175,438	
Nebraska	2,734,500	
Utah	1,094,900	12,004,838
Sorghum sugar—		
Kansas	..	1,136,086
Maple sugar	..	144,882
Total	..	378,115,217

Production of
sugar in the
United States
on which
bounty was
paid for last
fiscal year.

A large majority of the producers of maple sugar, made on application for licenses during the last fiscal year, and the quantity (1522)

of maple sugar produced in the United States cannot be correctly given. According to returns of the census of 1890 about 33,000,000 lbs. of maple sugar were produced in the United States in 1889.

Total amount of sugar produced during last fiscal year. The total amount of sugar (with and without the bounty) produced in the United States during the last fiscal year was as follows:—

Description.							Quantity.
							Lbs.
Cane	..	..	..	..	..	..	367,752,305
Beet	..	..	..	..	..	..	12,004,838
Sorghum	..	..	..	..	..	..	1,136,086
Maple (estimated)	..	..	..	..	..	..	33,000,000
Total	..	..	..	..	..	..	413,893,230

Process of manufacture of different grades of sugar in the United States. The following statement shows the quantity of each grade of cane, beet, and sorghum sugar produced on which bounty was allowed during the last fiscal year, and the process of its manufacture:—

WASHINGTON.

State where Produced.	Material Used.	Vacuum-pan Process of Manufacture.			Open-kettle Process of Manufacture.			Total Licenses.	Total Sugar.
		No. of Licenses.	Testing not Less than 90°.	Testing Less than 90° and not Less than 80°.	No. of Licenses.	Testing not Less than 90°.	Testing Less than 90° and not Less than 80°.		
			Lbs.	Lbs.		Lbs.	Lbs.		Lbs.
Louisiana ..	Cane ..	287	253,513,362	17,652,864	332	20,447,534	63,277,193	619	354,901,053
Mississippi ..	" ..	..	..	..	1	9,543	..	1	9,543
Florida ..	" ..	1	817,120	93,055	10	5,274	13,799	11	929,248
Texas ..	" ..	5	7,441,904	65,549	9	151,835	1,330,279	14	8,989,567
California ..	Beet ..	3	8,175,438	..	..	..	..	3	8,175,438
Utah ..	" ..	1	1,094,900	..	..	..	..	1	1,094,900
Nebraska ..	" ..	2	2,734,500	..	..	..	..	2	2,734,500
Kansas ..	" ..	3	926,311	209,775	..	..	..	3	1,136,086
Grand total ..	..	302	274,703,535	18,031,243	352	20,614,286	64,621,271	654	377,970,335

NOTE.—Centrifugals were used in the manufacture of a small quantity of the "open-kettle" sugar.

RECAPITULATION.

Description.	Quantity.
	Lbs.
Vacuum-pan sugar	292,734,778
Open-kettle „	85,235,557
Total	377,970,335
Sugar testing not less than 90°	295,317,821
Sugar testing less than 90° and not less than 80°	82,652,514
Total	377,970,335

Cane sugar under 80°. The cane sugar made in the United States, which did not test 80 degrees or enough to obtain bounty, amounted to 326,085 lbs.

The cane sugar made during the year, testing 80 degrees or over, upon which bounty was not claimed, or was not paid until after July 1, was 2,596,540 lbs.

Beet Sugar Factories.

Beet sugar manu- factories. The Commissioner of Internal Revenue states in his report that the first sugar factory in the United States to commence operations under the bounty Act was the Chino Valley Beet Sugar Company, Chino, California, which opened August 20, 1891.

Six beet factories were in operation last year, producing 12,004,838 lbs. of sugar, operating on an average 58½ days. They were—the Utah Sugar Company, Lehi, Utah; Alameda Sugar Company, Alvarado California; Western Beet Sugar Company, Watsonville, California; Chino Valley Company, Chino, California; Oxnard Beet Sugar Company, Grand Island, Nebraska, Norfolk Beet Sugar Company, Norfolk, Nebraska.

The Commissioner states that the same factories have received licenses for the year 1892–93, and he expects the production this year to show considerable increase over last season, and that a number of new factories will shortly be erected.

The beet sugar producers reported 17,314½ acres of beets under cultivation for this year's crop, and the Commissioner estimates the amount of sugar to be produced at about 30,000,000 lbs.

Sugar Made from Sorghum.

Sorghum. The only licensed sorghum sugar factories during the last fiscal year were the Medicine Lodge Sugar Works, Medicine Lodge, Kansas, which commenced operations August 31, 1891, and the Parkinson Sugar Company, Kansas. They were in operation an average of 44 days, and produced 1,113,086 lbs. of sugar.

The following is a summary statement of the operation of the sorghum sugar factories during the year ending June 30, 1892:—

Description.					Number.
Total sorghum cane ground	..	..	..	Acres	2,149.61
" " " "	..	..	..	Tons	15,572.60
Average yield of sorghum per acre	..	..	..	"	7.20
Packages of sugar made	..	..	..	Bags	5,251
" " " "	..	..	..	Barrels	269
Total packages	..	..	..	..	5,520
Sugar produced—					
Testing 90° and over	..	..	..	Lbs.	926,311
Testing not less than 80°, but less than 90°	..	..	..	"	209,775
Total	..	..	..	..	1,136,086
Quantity of sugar produced per acre	..	..	..	"	528.5
" sugar produced per ton of cane	..	..	..	"	73
Molasses made (partially estimated)	..	..	..	Gallons	185,249
Total number of employes	..	..	..	..	182
Average number of days in operation	..	..	..	..	44

Sugar from Sugar-cane.

During the fiscal year 697 cane sugar producers were licensed in Louisiana, but only 619 made claims for bounty. In Florida there were 15 sugar producers licensed, 11 of whom applied for bounty.

In Texas there were 15 producers licensed, 14 of whom applied for bounty.

The Commissioner of Internal Revenue states in his report that the production for the last fiscal year of cane-sugar did not equal the expectations based on the acreage planted. The weather was not favourable, and the outflow of the Mississippi damaged some plantations. From present indications he anticipates a considerably larger crop for the current year.

Only a small quantity of the cane sugar made tested less than 80 degrees, and more than three-fourths tested over 90 degrees.

Of the 619 licenses who claimed bounty 332 made sugar by the open-kettle process, and 287 used the vacuum-pan process of evaporation. The open-kettle factories produced 83,724,827 lbs., upon which bounty was paid, and the vacuum pan and centrifugal factories produced 271,175,226 lbs., or more than three-fourths.

Acreage of Sugar-cane under Cultivation.

The following is the acreage of cane under cultivation in the United States as reported by applicants for license for the current year:—

State.	Description.	Acres.
Louisiana ..	Acres cultivated by applicants	199,360
	„ to be purchased by applicants	47,290
	Total	246,650
	Acres of plant cane	94,164
	„ of stubble cane	105,196
	not classified	47,290
	Total	246,650
	Acres to be reserved for seed	37,514
Mississippi ..	Acres to be utilised for sugar production ..	209,136
	Acres cultivated (one applicant)—	
	Plant cane	10
	Stubble cane	2
Texas	Total	12
	Acres cultivated by applicants—	
	Plant cane	1,490
	Stubble cane	4,029
	Acres to be purchased	120
	Total	5,639
Florida ..	Acres to be reserved for seed	1,098
	Acres to be utilised for sugar production ..	4,541
	Acres cultivated by applicants—	
	Plant cane	141 $\frac{1}{2}$
	Stubble cane	268
	Acres to be purchased	21
	Total	430 $\frac{3}{4}$
	Acres to be reserved for seed	279
	Acres to be utilised for sugar production ..	151 $\frac{1}{2}$

SUMMARY.

Description.	Acres.
Total acreage of cane under cultivation in the United States, as reported	252,731 $\frac{1}{2}$
Acreage to be reserved for seed	38,891
Net acreage for sugar production	213,840 $\frac{1}{2}$

Maple Sugar.

Of the 4,240 producers who obtained licenses during the last fiscal year only 3,049 made claims for bounty, of which 242 were disallowed mainly on account of the producer not making 500 lbs. testing at least 80 degrees by the polariscope.

The following table, given by the Commissioner of Internal Revenue in his report, shows the number of producers of 500 lbs. or upwards of maple sugar in 21 States of the Union, according to the eleventh census :—

States.	Number of Producers.
Connecticut	5
Illinois	8
Indiana	24
Iowa	23
Kentucky	1
Maine	39
Maryland	78
Massachusetts	415
Michigan	1,135
Minnesota	23
Missouri	5
New Hampshire	1,725
New York	7,884
North Carolina	2
Ohio	930
Pennsylvania	1,101
Tennessee	2
Vermont	10,099
Virginia	4
West Virginia	26
Wisconsin	4
Total	23,533

The following table from the same source shows the maple trees tapped and the quantity of sugar and syrup produced by licensed maple sugar producers during the year 1892 :—

States.	Number of Maple Trees Tapped.	Sugar Produced.	Syrup Pro- duced not Made into Sugar.
		Lbs.	Gallons.
Maine	3,200	3,246	..
New Hampshire	59,221	82,503	1,676
Vermont	1,524,103	2,416,478	38,369
Massachusetts	5,152	7,012½	60
New York	400,408	753,116½	8,572
Pennsylvania	101,103	245,222	2,716
Maryland	49,629	117,600	688
West Virginia	3,237	8,968	..
Ohio	126,879	271,867½	8,095½
Michigan	35,882	68,026½	2,074½
Minnesota	7,490	6,613	125
Iowa	889	1,300	68½
Total	2,317,143	3,981,953½	62,444

It is stated by the Commissioner that maple sugar makers agree with practical unanimity in fixing 3 lbs. per tree as an average yield per tree of sugar.

average product in a good average season. Different orchards vary greatly, dependent on their more or less favourable location. Trees in the same orchard also vary, one producing not more than 2 lbs., or even less, while another will produce 5 lbs. From 12 to 16 quarts of sap will produce 1 lb. of sugar. A syrup weighing 11 lbs. to a gallon will, if a good quality, make $8\frac{3}{4}$ lbs. of sugar.

Estimate of
total bounty
for current
year.

Suggested
amendment to
Act.

The Commissioner of Internal Revenue estimates the bounty to be paid during the current fiscal year at about 8,400,000 dol. (1,680,000*l.*).

He also suggests that the present law should be amended so as to permit the payment of a bounty of 2 dol. 20 c. per 100 lbs. upon pure sugar, graduated in amount according to the polariscopic test, increasing the amount for each degree from 80 to 100 on the basis of 2 dol. 20 c. per 100 lbs. of pure sugar. Under the existing law there is no inducement for the producer to make a higher grade of sugar than 90 per cent., except such difference as there may be in the market price. The higher the grade of the sugar the greater is the percentage of foreign substances removed from it, and as a consequence the weight is diminished and the amount of bounty received is lessened. Therefore there is no profit to the producer in making a high grade of sugar, but, on the contrary, it is to his interest, so far as the bounty is concerned, to make it as nearly 80 per cent. or 90 per cent. as possible. The Commissioner is of opinion that his proposed amendment will remove the temptation to keep the grade of sugar down close to the bounty line, and will stimulate the production of sugar of the highest grade.

Unlikely to
pass.

It is not, however, likely that the next Congress, which will be democratic, will act on the Commissioner's suggestion, and it is more probable that they will abolish the bounty altogether.

In connection with this report the following statistics (which are taken from Government publications), in regard to the consumption of sugar in the United States, may be found interesting:—

WASHINGTON.

TABLE showing Importation of Sugar into the United States during the Fiscal Year ending June 30, 1892.

Description.	Quantity.	Value.
	Lbs.	Dollars.
1. Amount of sugar imported into this country during the fiscal year ending June 30, 1892.	3,556,509,165	..
Beet sugar, free of duty	293,134,261	..
Cane or other sugar free of duty	3,248,494,502	..
Sugar not classified, above No. 16, Dutch standard, dutiable.	14,880,402	..
Total	3,556,509,165	..
2. Quantity of maple sugar imported—		
Free	1,731,728	..
Dutiable	22,254	..
Total	1,753,982	..
3. Total amount of duty paid upon sugar imported into this country during the fiscal year ended June 30, 1892	..	76,795.14
4. Value of the sugar imported into this country during the fiscal year ended June 30, 1892—		
Beet sugar, free of duty	..	8,081,170
Cane or other sugar, free of duty	..	95,761,312
Sugar not classified, dutiable	..	566,331
Total	..	104,408,813

The following table shows the quantity and value of sugar imported into the United States during the last 5 years ended June 30, 1888-92:—

Year.	Quantity.	Value.
	Lbs.	Dollars
1888	2,700,284,282	74,245,206
1889	2,762,202,967	88,543,971
1890	2,934,011,560	96,094,532
1891	3,483,477,222	105,728,216
1892	3,556,509,165	104,408,813

The following table, prepared by the Bureau of Statistics in Washington, shows the quantities and values of sugar, free and dutiable, of all kinds imported into the United States during the fiscal year ending June 30, 1892, and the countries from which imported:—

Country from which Imported.	Free of Duty.				Dutiable Sugar.	
	Beet.		Cane or other.			
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Lbs.	Dollars.	Lbs.	Dollars.	Lbs.	Dollars.
Austria-Hungary ...	69,747,884	1,818,915	...	...	195,357	9,370
Belgium ...	38,919,574	1,122,854	...	...	...	...
Brazil ...	...	...	177,520,579	4,468,145	883,493	41,186
Salvador ...	...	...	337,400	11,795	...	...
China ...	...	...	645,257	20,149	6,209,829	235,307
Danish West Indies...	...	...	9,041,406	262,693	...	...
France ...	10,169,204	307,432	...	...	25,852	1,167
French West Indies...	...	...	599,808	13,222	4,309,696	152,927
Germany ...	173,310,790	4,804,628	...	...	...	...
Hayti ...	...	...	21,344	535	...	...
Hawaiian Islands ...	...	...	262,612,405	7,442,047	...	...
Mexico...	...	...	1,528,679	40,776	200	14
Netherlands ...	463,425	11,527	...	...	3,355	129
Dutch Guiana ...	...	...	7,132,576	205,887	...	...
Dutch East Indies ...	...	...	140,956,946	3,707,210	...	...
Santo Domingo ...	...	...	62,615,068	2,017,739	...	...
Cuba ...	...	...	1,983,514,689	60,838,552	5,333	223
Puerto Rico ...	...	...	80,474,547	2,308,657	...	...
Philippine Islands ...	...	...	97,305,662	2,417,109	...	...
Turkey-in-Africa ...	...	...	7,877,056	194,909	7,947	240
United Kingdom ...	523,384	15,814	5,954,432	165,736	356,890	14,216
Nova Scotia, New Brunswick, &c. ...	...	...	1,257,805	40,373	...	...
Quebec, Ontario, Manitoba, &c. ...	...	...	1,782,797	113,220	116,679	4,564
British Columbia ...	...	...	11,897	540	123,965	5,112
Bermuda ...	...	...	211	10	...	...
British West Indies ...	...	...	259,249,502	6,891,156	200	7
British Honduras ...	...	...	143,860	3,189	...	...
British Guiana ...	...	...	139,570,515	4,360,662	239	8
British East Indies ...	...	...	42,792	1,142	...	...
Hong-Kong ...	...	...	264,696	7,478	2,641,377	101,921
British possessions in Africa, &c. ...	...	...	8,031,573	228,481	...	...
Total from all countries ...	293,134,261	8,081,170	3,248,494,502	95,761,312	14,880,402	566,331

RECAPITULATION.

Description.	Total Quantity.	Total Value.
	Lbs.	Dollars.
Sugar imported ...	3,556,509,165	104,408,813

The following table shows the quantity and value of sugar exported from the United States during the fiscal year ended June 30, 1892:—

Description.	Quantity.	Value.
	Lbs.	Dollars.
Brown sugar, domestic. .	245,783	8,682
Refined sugar, domestic ..	14,604,608	665,477
Foreign sugar ..	4,564,229	155,886
Total ..	19,414,620	830,045

The following table gives the quantity of sugar exported from the United States during the last five fiscal years:—

Year.						Quantity.
						Lbs.
1888	..	..	..	..	..	60,899,496
1889	..	..	..	..	..	19,751,597
1890	..	..	..	..	..	47,495,577
1891	..	..	..	..	..	112,951,117
1892	..	..	..	..	..	19,414,620

The following table shows the total consumption of sugar in the United States during the fiscal year ended June 30, 1892, as estimated by the Commissioner of Internal Revenue:—

						Quantity.
						Lbs.
Amount of sugar imported	..	..	..	..	..	3,556,509,165
Amount manufactured from imported molasses (estimated)	..	..	..	..	..	74,659,200
Amount of domestic production..	..	..	..	..	..	412,893,230
Total	..	..	..	..	..	4,044,061,595
Deduct amount of sugar exported	..	..	..	..	..	19,414,620
Amount consumed	..	..	..	..	..	4,024,646,975
Which, divided by 64,817,000, estimated population January 1, 1892,	gives the amount consumed per capita, viz.					62.09

The consumption of sugar per capita of population in the United Kingdom, as estimated by M. Licht, was, I believe, 78 lbs. 7 ozs. for the year 1890–91.

The Bureau of Statistics in Washington have published the following table showing the quantity of sugar consumed per capita in the United States during each calendar year from 1880 to 1891 inclusive:—

Year.						Quantity.
						Lbs.
1880	..	..	..	..	..	42.7
1881	..	..	..	..	..	44.2
1882	..	..	..	..	..	48.4
1883	..	..	..	..	..	51.1
1884	..	..	..	..	..	53.4
1885	..	..	..	..	..	51.8
1886	..	..	..	..	..	56.0
1887	..	..	..	..	..	52.0
1888	..	..	..	..	..	56.0
1889	..	..	..	..	..	51.0
1890	..	..	..	..	..	56.0
1891	..	..	..	..	..	69.0

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UNITED STATES.

CHICAGO.

Consul Hayes Sadler to the Earl of Rosebery.

My Lord, *Chicago, May 6, 1893.*

I HAVE the honour to transmit herewith a short Report on the Inauguration and Condition of the World's Columbian Exposition on the 1st instant.

I have, &c.
(Signed) J. HAYES SADLER.

Report on the Inauguration and Condition of the World's Columbian Exposition on May 1, 1893.

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The Inauguration.

The inaugural ceremonies took place on May 1 in presence of the President of the United States, and the World's Columbian Exposition is now open to the public, an Exhibition which for magnificence, dimension, completeness, and comprehensiveness has never been equalled. The contest has now fairly begun, an important contest in which all the nations of the earth are joining at a time when competition is more likely to bear important results than perhaps at any past period. The whole undertaking is on such a vast scale, and has taken such wide

proportions, that little surprise should be felt if all the preparations were not wholly complete by the day fixed for the opening. Little, however, is left to be done, except the final arrangement of the exhibits, which is being carried on with great energy; outwardly the buildings and decorations are complete, their grand effect is presented to view, and when weather permits the floral decorations to be made and trees are in leaf the grounds will present an effect hitherto unsurpassed.

The ceremonies commenced at 9 o'clock with a procession of carriages from the city to Jackson Park, escorted by cavalry, comprising those of the President of the United States, the Duke of Veragua, the guest of honour as descendant of Columbus, the chief members of the Exposition, Direction and Commission, and a few other prominent persons who were assigned seats in front of the raised platform, where about 2,000 invited guests were assembled. A few members of the Diplomatic Corps were present, and the Commissions of all foreign countries were represented. The British Royal Commissioners present were Sir Edward Birkbeck, Bart., Mr. James Dredge, and Mr. Walter H. Harris. The superb view from this elevated position at the east end of the Administration Building, looking towards the lake, was flanked by the Agriculture and the Machinery Buildings on the right, and the Manufactures and Electricity Buildings on the left, and stretched over the lagoon, on which gondolas and steam launches were plying. An immense crowd was assembled in front of the platform, and on each side of the lagoon, and counting the many invited and other persons who were entitled to free entry, and the numbers who paid entrance at the gates, it is estimated that not less than between 300,000 and 400,000 persons were assembled on the occasion. When the President was seated a band played the Columbian March and Hymn, after which a prayer was offered and a few addresses made; the President having declared the Exhibition open, then pressed a button and started the machinery in motion. Later in the afternoon the President and guests and members of the Diplomatic Corps visited the sections and pavilions of different countries in the Manufactures Building, proceeded round the lagoons and canals in steam launches, and inspected the Art and other Buildings.

The Constructive Work.

The grounds. Before offering a short description of the condition of the Exhibition at the time of the opening, it may be well to recall the fact that 2 years ago Jackson Park was a marshy waste, half covered with water, and presenting a difficult location on which to lay the foundations of the various structures. A vast amount of work and expense was entailed in laying out the grounds preparatory to the buildings being constructed, and this draws attention to the grand plan on which the whole landscape arrangement was first designed, and to which the beauty of the

effect now presented is so much owing. The two great advantages of the site were its position on the borders of the lake, along which it extends for nearly 2 miles, and the lay of the ground, which, unpromising as it was in many respects, enabled a combination of lagoons and canals to be made, thus adding much to the effect of the constructions and the charm of the scene. There was also the advantage of space, a large area of 586 acres, with power of expansion in a westerly direction along the Midway Plaisance, which additional extent of 1 mile in length is now filled up with concessions forming an Exhibition of themselves.

This original plan was superlatively happy, and the disposition of the buildings, regularly yet irregularly intersected with water spaces, drives, and terraces, has, now they are finished, produced a grand and harmonious result, which demonstrates the master mind in which the conception originated. In this landscape plan Mr. Olmsted grasped an ideal of unequalled beauty and grandeur, which Mr. Burnham, the director of works, has carried out with such wonderful energy, executive talent, and determination.

It is little more than 2 years since this ground was first broken and the idea first put in execution. Numerous difficulties occurred as the work developed and took a wider range, and at times delay was caused by extreme severity of weather, destructive storms, and the great cold of the first months of this year, but all difficulties were met successfully by the one firm resolve that the work should be done in time. The outside of the principal buildings were practically finished when the dedication ceremonies took place on October 21 last, on which occasion about 130,000 persons were collected under the one roof of the Manufactures and Liberal Arts Building. Since then the interior fittings, decorations, statuary, and a variety of other works have been carried on and arrangements made, many of them necessary before exhibit cases could be unpacked, but in many of these arrangements delay occurred so that, at the time fixed in November for the reception of exhibits, preparations were not concluded inside the buildings to receive them. The first exhibits which arrived were temporarily taken care of elsewhere, but it seems always the case in similar circumstances, exhibitors themselves were slow in sending in, especially the American exhibitors, and consequently a rush was made at the last moment, which added to the perplexity of the occasion, and prevented exhibits being generally exposed to view by May 1. About 13,000 men have, however, been employed for the last few weeks day and night, and it will not be long now before everything will be ready for the inspection of visitors.

So much has been written, such wide circulation has been given to everything connected with the World's Fair by the press and the Bureau of Promotion and Publicity of the Exhibition that a general account would bear the character of repetition; a few words may recall some of the principal characteristics of this great undertaking, and give some idea of the dimensions it has eventually reached. There are now 400 separate and distinct

buildings in the grounds, exclusive of booths, covering an area of about 200 acres, 150 of which are covered by exhibition buildings and 50 by concession buildings. The 12 principal buildings, which are all of classical architecture and have been described in a previous report* at greater length, are, with the square feet of space they cover, as follows :—

Description.						Square Feet of Space Covered.
Administration building ..	"	"	"	"	"	68,500
Machinery hall and boiler house	"	"	"	"	"	780,000
Agriculture building ..	"	"	"	"	"	572,000
Forestry ..	"	"	"	"	"	110,000
Manufactures and liberal arts ..	"	"	"	"	"	1,328,000
Electricity building ..	"	"	"	"	"	250,000
Mines and mining building ..	"	"	"	"	"	225,000
Transportation and annex ..	"	"	"	"	"	606,000
Horticulture building ..	"	"	"	"	"	249,000
Woman's ..	"	"	"	"	"	79,000
Fisheries ..	"	"	"	"	"	59,000
Art ..	"	"	"	"	"	160,000

Besides these, the following main structures have been erected in harmony with the principal buildings :—

* Miscellaneous Series No. 256.

Description.	Square Feet of Space Covered.
Pumping station	6,000
South colonnade	24,000
Dairy building	20,000
Freight houses	46,000
Convent of La Rabida	96,000
Stock ring	110,000
Company's shops	20,000
„ barns	6,000
Sewage cleansing works	10,000
Landscape propagating house	30,000
Tank house	37,000
Saw mill	25,000
Peristyle, music hall, and casino	126,000
Terminal station	68,000
Grounds and buildings headquarters	50,000
Photographic building	3,800
Horticultural greenhouses	25,000
Fire and police houses	42,000
Mechanical offices	9,700
City police stations	16,500
Leather building	86,000
Silos	1,300
Model building	7,500
Stock barns	532,000
Custom-house	21,000
Choral music building	50,000
Entrances	56,000
Music stands	2,000
Perron and sheds	58,000
Sheds for empty cases	400,000
Children's building	20,000
Public comfort	16,000
Anthropological building	156,000

Making a total of 6,943,300 square feet, including the Art Institute in the centre of the city, where the meetings of the Congress Auxiliary will be held, which has an area of 30,000 square feet. Besides these principal and main structures there are the Admissions and Collections Buildings, a casino, music-hall, garbage crematory, railway exhibits, army hospital, lighthouse, weather bureau, and numerous other buildings, booths, and pavilions. In addition to the above there are within the grounds, Other erected at their own cost, the Government Building, the separate buildings. buildings of 38 different States, and the various constructions erected as headquarters by foreign countries. The whole of the buildings already mentioned can be seen for the entrance charge of 2s. The entire Midway Plaisance is filled with villages of various countries, shows, bazaars, and other concessions too many to enumerate, for which a small extra entrance fee is demanded at each. To visit all these shows besides the Exhibition will, it is said, cost about 6l. 12s. Besides these there are several shows of great proportions outside the Exhibition Grounds, such as those conducted by Buffalo Bill and Imry Kiralfy, which have been expressly attracted to Chicago for the season of the Exhibition.

It would be impossible to convey an adequate idea of the extent and variety of all the constructive works which have been put in execution or completed since the dedication, and were found necessary to perfect preparations for the opening. Even the principal buildings were without decoration and the interiors incomplete. The groups of statuary which now ornament so many of the buildings inside and outside the Peristyle with its columns surmounted by figures, the great fountain, the colossal statue of Diana, the statues of animals on the terraces, and the decorative frescoes of many of the constructions—all original designs of great power—add much to the beauty of the buildings and grounds, while a dignity and harmony both of design and colour pervades the whole. The constructions of the different States are all grouped at the north end of the park, and are of every design and architecture, some of them, especially those of Illinois and New York, being important buildings. Further south and east are the headquarters of foreign countries, Germany leading with a large and imposing construction; France has also an important building. Victoria House, the British building, though its situation on the lake is perhaps the best in the grounds, and it is a well-built picturesque structure, is comparatively small, and has a less imposing appearance. Some other countries have relatively important buildings. The headquarters of Canada, Ceylon, Costa Rica, East India, France, Great Britain, Germany, Guatemala, Japan, New South Wales, Spain, Sweden, Turkey, and Venezuela are ready for the purposes for which they were erected, and most of the States' buildings are entirely complete and finished.

The Work of Installation.

Delay in
installing
exhibits.

The assignments of space to foreign countries were made many months ago in time for the several Commissioners to assign their allotments, but for many reasons there has been some delay in completing the assignment of space in some of the buildings to home exhibitors from uncertainty as to the amount of space available. Complications arose from some declining the space allotted, and from fresh applications being received from others. The buildings were for the most part not complete inside, or in bad condition from severe weather, there being many leakages in the roofs, and even in March and April repairs were necessary. The transportation tracks, too, were not laid till January, whereas the time specified for receiving exhibits was November. There was delay in the Department of Mines and Mining owing to the necessity of enlarging the power plant, and to other unforeseen conditions. Very few exhibits arrived before March, and then extra time and expense was in many cases entailed in taking care of and thus re-handling exhibits assigned to buildings which were not ready to receive them. American exhibits were especially slow in arriving. These delays caused a great rush of work at the last moment, and though a large staff of men were engaged there

was some confusion in handling the exhibits, and few stalls were ready on the opening day. There is now no trouble in distributing the exhibits, and in a short time they will be all on view.

Space in the Manufactures Building for domestic exhibits was found wholly insufficient, and other buildings were supplemented. Manufactures Building.

The number of applications in this department up to December 1 last was 2,617, asking for 1,080,182 square feet net, and others came in afterwards, while the amount available on ground floor and gallery together was only 400,000 square feet gross. The Merchant Tailors' Pavilion was then constructed for that exhibit; another building was provided for the leather industries, with 86,000 square feet of space, and another building which was intended for educational exhibits was turned into the Anthropological Building, with 156,000 square feet. In this latter building the Department of Ethnology and the Bureau of Hygiene and Sanitation and Charities are now placed. In March foreign exhibits The pavilions. arrived in great numbers, and the construction of the pavilions of different countries was carried on with great energy, though they are scarcely yet complete. Some of the pavilions are very important constructions and already attract much attention. The four great manufacturing nations are grouped in the most conspicuous position round the Clock Tower in the centre of the Manufactures and Liberal Arts Building, the United States being to the north east, France to the south-east, Great Britain to the south-west, and Germany to the north-west; other countries are located in the main or side aisles, and almost all have erected handsome pavilions. Germany perhaps carries off the honours with an elaborately handsome erection; the United States have a lofty and conspicuous pavilion, and France has a brilliant architectural façade enclosing the front of her allotted space. Great Britain has a number of small pavilions erected by different exhibitors, but, beautiful and well-arranged as many of them are, they appear somewhat diminutive, and are less important than the lofty and elaborate pavilions of their neighbours. Many other countries, especially Belgium and Austria, and one or two others, have very beautiful façade and decorative constructions enclosing their sections, and it seems to have been very generally made an important point at the Exhibition to endeavour to draw attention to exhibits by attractive surroundings.

The exhibits themselves are not yet sufficiently arranged in the different sections for an opinion to be formed of their relative and intrinsic merits by those who visit the Exhibition; it will take yet In other buildings. 3 or 4 weeks before they can be all examined and compared, and even the pavilions, stalls, or decorations of many are not quite complete; but a clear idea can be obtained of the measures taken to make each display of exhibits conspicuous by attracting attention to the section, and it can scarcely be doubted that numbers are drawn insensibly towards those exhibits which are the most brilliantly set off. There will be many visiting the Exhibition with a view to trade who must consult the attractiveness of the articles they purchase, and many a really inferior

article may be preferred, while the better goods are passed by which lack attraction and importance in their surroundings. The Exhibition is a fight for trade, and the Manufactures Building is the ground on which, perhaps, the most important battle will be fought.

The exhibits in the Government Building are, to all purposes, completely installed, and great progress has been made in other departments considering the vast scale of the Exhibition and the number of exhibitors. In the Horticultural Department, New South Wales appears to lead foreign countries in a display of its native flora; France has a large exhibit, with leading landscape gardeners to arrange the display, and other nations are gradually developing their shows of trees, plants, and seeds. The foreign exhibits in the Fisheries Building are almost entirely complete, but some of the domestic displays are somewhat backward. In the Mines and Mining Building the bulk of foreign exhibits of minerals are in position. Where space has been relinquished it has at once been filled by assignment to another commission applying for space. The home exhibits and mining machinery will very soon be ready for inspection. The electrical exhibit, when completed, will embrace every possible application and the practical uses to which electricity can be applied in commercial enterprises. In the Department of Fine Art the United States, the English, German, Dutch, Swedish, and Japanese sections were practically ready for the opening, and the French section nearly so, but some parts of the building were not free from constructive material. The leading countries are well represented, and a very important display is made. The exhibits in the Liberal Arts Department, though somewhat delayed by changes made in the location of some branches for exhibition, were in a forward state at the time of the inauguration, and others which were consigned to the Anthropological Building were prepared for final arrangement, but this building is yet in an unfinished condition; when finished it will contain very complete and interesting exhibits and relics from all parts of the world. There will also be out-of-door exhibits connected with the Anthropological Department.

Comfort and Transportation.

Comfort.

The comfort of visitors has been a subject of much consideration and forethought. Seats in the grounds are not yet placed, but a great number will be shortly at the disposal of the public free. Wheel chairs can now be hired at a small charge, and guides are organised to conduct visitors wherever they may wish, should they desire to engage their services, at a moderate rate. There are free medical and emergency hospitals, post offices, telephones, telegraphs, &c., for the convenience of visitors. The intramural line is completed, and will be in operation in a few days to convey visitors round the grounds at a moderate fare. It is an electric railway $3\frac{1}{16}$ miles long, with loop terminals, one loop being just

north of the Government Building, and the other on the banks of the south lagoon, with eight other stations at different intervals. A wide pier in front of the Casino stretches half a mile into the lake for the use of steamers, and also serves as a promenade. A movable sidewalk runs round the pier from end to end, forming an endless train 4,300 feet long. Boat-landings have been constructed, with wide steps, at different intervals, for the convenience of those who may wish to go round the canals and lagoons, or from one part of the grounds to another, in steam or electric launches or gondolas. Water will be supplied free from 200 fountains furnished with Pasteur filters, 100 of which will be conveniently located in the principal buildings, and 100 in the grounds where visitors are most likely to congregate. The restaurants, which will be numerous, are also compelled to supply filtered water, and to use it in the preparation of food, and the same rule applies to the Midway Plaisance. Spring water from the mineral springs of Wisconsin will be sold at 1*d.* per glass at 72 booths outside, and 150 booths inside the different buildings. The Columbian Guard, a force of about 1,500 men under military organisation and discipline, commanded by a distinguished officer in the United States Army, affords protection to visitors, and will be increased if found necessary.

The means of conveyance for the number who are expected daily to visit the grounds is now considered equal to any occasion. Transportation. The elevated railroad from Congress Street, in the heart of the city, to a station inside Jackson Park is now completed. The last 1½ miles was erected in a little over 2 months, three shifts of men being employed day and night. This part of the line is 34 feet above the level, and includes a span of 228 feet across the railway lines. Trains run every 3 minutes, and the capacity is 40,000 persons per hour. The Illinois Central Railway tracks have been raised for some distance before reaching the park, allowing of carriage-ways underneath instead of grade crossings. Special trains are now running at short intervals, and the capacity of the line for conveyance is very great. Steamers, specially built for the purpose, are also plying from the city to the grounds.

The Cost.

The cost of the Exhibition may be judged from the moneys raised by the Commission, together with the funds appropriated by the national and foreign Governments and the different States of the Union for their separate buildings and administrative expenses. The total receipts and appropriations, in a condensed form, are as follows :—

Description.	Amount.	
	£	£
Receipts from stockholders	1,145,105	
City of Chicago	1,030,928	
Debenture bonds	844,227	
Gate receipts to April 1	48,423	
Interest	18,343	
Miscellaneous receipts	60,929	
Total receipts of Commission		3,147,955
Original appropriation of United States Govern- ment	309,278	
Appropriation of souvenir coins	515,464	
" for medals and diplomas	21,237	
" for National Commissioners and Boards	225,954	
Total National appropriations		1,071,933
Contributions by States of the Union	1,241,412	
Appropriations by foreign Governments	1,170,165	
Other sources	184,790	
Total State and foreign appropriations		2,596,367
Grand total	..	6,816,255

Of the amount contributed by the different States for their several buildings and expenses, Illinois raised 165,000*l.*, New York 123,710*l.*, California 113,400*l.*, and the other States varying but smaller sums. In some States additional appropriations have lately been made by the Legislative Assemblies, and in others, counties or towns have set apart funds for exhibits, or contributed building material, or entertainments have been given to increase the funds. Of foreign countries Germany leads with an appropriation of about 165,000*l.*, and, it is stated, a further sum has been approved for German representation at the fair; France follows with 151,135*l.*, Japan with 130,000*l.*, and Brazil with 124,000*l.* Great Britain comes next with 60,000*l.*, followed by New South Wales with 50,170*l.*, Spain with 44,120*l.*, Guatemala with 41,240*l.*, Costa Rica and Morocco each with 31,000*l.*, Peru with 29,000*l.*, and Ecuador with 25,000*l.* The Argentine Republic, Austria, Colombia, Canada, the Netherlands, Sweden, and Paraguay have appropriated about 20,000*l.* each, and the other countries lesser sums.

Including the souvenir coins donated by the National Government, the total receipts of the Exhibition up to date amount to 3,663,419*l.*, which about represents the sum expended by the Commission on the undertaking. The stocks and bonds amount to 1,989,332*l.*, to recover which large sum and the further current expenses in keeping the Exhibition open till the end of October the gate receipts are counted on in conjunction with receipts from the concessions, which are expected to bring in a large sum. There will also be something saved out of the buildings when they are pulled down or sold for removal, but

whether the enterprise will be financially successful must be left for time to prove.

With wonderful energy an undertaking of vast magnitude has been realised. The World's Columbian Exposition at Chicago in 1893 is the most important Exhibition which has ever taken place, and its influence on the trade of nations may not be unimportant. The contest has now begun, and it is the aim of all to gain the position held by others; many channels of trade may be turned, and those who exert the most energy, and take the best measures to secure it, have the best chance of success; while in proportion as some gain, others must suffer. The United States will undoubtedly be a great gainer in many ways by the Exhibition; it will improve the taste and feeling for the higher arts, and raise the educational standard of the people, who will not be slow to profit by the lessons learnt; and as some of the finest work from all parts of the world will be on view, and each country is so well represented, a visit to the Exhibition will afford to the people of all nations an opportunity which should not fail to be a source of profit.

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AT CHICAGO.

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UNITED STATES.

CHICAGO.

Consul Hayes Sadler to the Earl of Rosebery.

My Lord, *Chicago, December 9, 1893.*
I HAVE the honour to transmit herewith a Report on the
Close of the World's Columbian Exposition at Chicago in 1893,
with an account of the financial position of the undertaking.

I have, &c.
(Signed) J. HAYES SADLER.

Report on the Close of the World's Columbian Exposition at Chicago in 1893.

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NOTE.—Throughout this report exchange is calculated at the rate of 4 dol. 85 c.
to the £.

Introduction.

On October 30, 1893, the World's Columbian Exposition at Chicago was officially brought to a close. A certain gloom marked the event; no ceremonies, such as took place at
(1679) A 2

the dedication and inauguration, were observed, for, owing to the tragic death of the Mayor of the city who was assassinated in his own house two days previously, the ceremonies which had been planned were abandoned. Only at sunset signal guns were fired; the flags of all nations, which for 6 months had waved over the various buildings were simultaneously lowered, and the grandest Exhibition the world has yet seen formally terminated.

Now that the Exposition has passed into history there is leisure for reflection, and it seems a fitting moment to cast a retrospective glance over the whole undertaking, its rise and progress, to gauge in some degree the measure of its success and to endeavour to arrive at some slight idea of its approximate result. A comprehensive history or detailed account of so vast an enterprise cannot be attempted, nor is it possible to touch on every feature or every lesson to be learnt, in so short a notice as the present. The history of the Exposition will be written by able men who have assisted in its management and direction from the commencement. A committee of eight members of the National Commission has been appointed to report to Congress; the Director-General and the chiefs of Departments will report on the organisation, construction, installation and management; and the twenty-five volumes to which the work is understood to be limited, will no doubt be exhaustive and instructive. But to compile this history will be a work of time, and many months, perhaps even a year or more, will elapse before it can be completed. The reports furnished by foreign commissioners to their respective Governments, and those of the colonial commissioners are certain to prove of great interest also should they be made public. In the meantime the following few remarks must be taken rather in the light of a general view, and in respect to some subjects must be considered as independent impressions or the reflection of opinion. Information from official sources with regard to the undertaking in a financial point of view is given up to the date of closing. With reference to the general success of the Exhibition it may perhaps not be inappropriate first to reconsider the circumstances under which this great undertaking was realised, before attempting to trace a brief outline of its principal landmarks.

Short History of the Exposition to the Close.

When the idea of a World's Columbian Exposition to celebrate the four hundredth anniversary of the discovery of America was first entertained, the citizens of Chicago were desirous that their city should be chosen as the site, and in 1889 a committee of influential citizens was formed to obtain that end, and a guarantee of 1,000,000*l.* was secured as an earnest that funds would be forthcoming to render the Exposition a success, should Chicago be chosen. On February 24, 1890, it was decided by vote of Congress that the World's Columbian Exposition should be held at Chicago,

and on March 26 the Bill was passed. Among the provisions of the Bill it was enacted that a National Commission should be formed of two Commissioners from each State, that certain appropriations should be made for a Government display and other matters; to the Exposition Company it was left to select the site, determine the buildings, subject to approval, fix the entrance fee, and make regulations for conducting the fair, provided a further sum of 1,000,000*l.* could be raised if necessary. This condition was accepted, and the amount eventually secured by the issue of Chicago bonds by the City Council. The National Commission was then constituted and a Director-General named. The President and Board of the Local Direction were selected by the Exposition Company, the different departments defined, and a consulting architect and chief of construction appointed; finally, in December, 1890, the President of the United States having been satisfied that the sum of 2,000,000*l.* required was raised, foreign Governments were invited to participate in the Exposition, and deputations were sent to foreign countries by the local direction to induce their active assistance. The Exposition differed therefore from similar undertakings in that, though a national and international exhibition, it was essentially a local enterprise; the locality was selected by the national Government, but the funds were provided by the city, and the management and success greatly depended on the local directors.

In July, 1890, the site for the Exposition had been definitely selected, but still many months were taken up in preliminary arrangements and organisation, prior to final decisions as to how the grounds should be laid out, or what buildings should be erected. The arrangements were at first tentative and uncertain, many difficulties were encountered, there was no precedent here to fall back upon, all had to be originated, and constant changes and modifications of the plans were necessary. It was not until January 27, 1891, a year after the task was accepted, that the first ground was broken, and then labour troubles arose which had to be met by concessions to trades unions, ultimately resulting in increased expense. Jackson Park, the site selected, was a marshy swamp almost level with the lake; preparing the ground entailed a great amount of labour and time; lagoons and waterways were dredged to raise the level of the land several feet above high-water to enable the buildings to be erected and the grounds laid out in pursuance of the landscape scheme proposed. The great advantages the site comprised were its extent, an area of 586 acres, besides the adjoining Midway Plaisance, which afforded an additional space of 80 acres, and its situation on the borders of Lake Michigan, along which it extended for a mile and a half, the tideless fresh water sea enabling a disposition of land and water which so greatly added to the charm of the scene and the beauty of the buildings. There was some disadvantage in the Park lying seven miles from the centre of the city, but easy means of transportation were at hand, and no more perfect or lovely situation could have been selected.

Up to April, 1891, the work consisted mainly of formulating plans. It was only in the late summer of that year that the foundations of the principal buildings were laid, and the work of construction fairly commenced. Plans for drainage, lighting, water supply, transportation, and numerous other works were adopted and put in execution; and, even as constructive work progressed, it took larger proportions, while it was found necessary to enlarge on the original project by the addition of subsidiary buildings. Marvellous activity, however, was exemplified in carrying out the contracts, and by October 21, 1892, the day fixed for the dedication, the main buildings were exteriorly complete. The next six months were occupied in decoration and ornamentation, and in beautifying the grounds, and on May 1, 1893, all arrangements were practically perfected, and the Exposition was officially and with much ceremony opened to the public. It is true that the exhibits were then but incompletely installed, and some weeks elapsed before they were entirely exposed to view, a few countries having for various unavoidable reasons been behind hand in their preparations. But in a wonderfully short space of time this vast undertaking had been realised, an Exhibition never previously equalled in grandeur and magnitude, or excelled in comprehensiveness; and the beauty and harmony of the combination of architecture, landscape, and water then presented to the world has been universally recognised as a grand and unqualified success.

To Messrs. F. L. Olmsted, H. S. Codman, J. W. Root, and D. H. Burnham, the consulting board of landscape artists and architects first appointed in the autumn of 1890, are due the plans of this embodiment of beauty. The success of the unparalleled effect produced is mainly due to the original landscape scheme formulated by Mr. Olmsted, whose assistant, Mr. Codman, did not live to see it completed. Mr. Burnham, who, on Mr. Root's death soon after his appointment, was chosen sole consulting architect, is entitled to the credit not only of selecting the architects and artists, but, as chief of construction, of modifying and harmonising their inceptions, and of superintending and carrying into execution the grand idea of the whole landscape plan. The best architects, sculptors, and engineers in the United States were enlisted in the work of designing the buildings, and vied together in every effort of their art. Not only as an adaptation of classical architecture to an industrial exhibition, but as an inspiration of splendour and harmony, the imagination can with difficulty picture a more perfect ideal than was realised. From the commencement the stately "Court of Honour," surrounded by the Administration Building, the Machinery and Agricultural Halls, the Peristyle, Casino, and Music Hall, and the Electricity and Manufactures Buildings, maintained its position as the central attraction, while the Fine Arts Gallery, some other buildings, and the wooded island excited the intense admiration of all who visited the grounds till the final close of the Exposition on October 30.

Notes on the Main Buildings and Departments.

The principal buildings, regarding which no disparaging comment has been made or disappointment felt, have been so often described that it seems only necessary to refer to them and to state the actual cost of each, which is now accurately known. With regard to their contents in the few remarks made, it is not intended to undertake the endless task of elaborating the exhibits or of particularising in what manner each country's excellence was exemplified, but more to illustrate how comprehensive and extensive the display really was. The cost of construction and the area of the principal buildings were as follows:—

Building.	Cost.	Area Covered.
	£	Acres.
Administration	98,206	1·6
Manufactures and Liberal Arts ..	371,708	30·5
Machinery	254,722	17·4
Agriculture.. .. .	143,951	14·3
Art	156,418	4·8
Electricity	92,805	5·5
Transportation	114,297	14·4
Horticultural	65,873	6·2
Mines and Mining.. .. .	60,394	5·6
Fisheries	48,455	2·2
Woman's	28,577	1·8
Anthropological	18,065	3·6

The Administration Building, distinguishable by its gilt dome, 120 feet in diameter and 220 feet high, contained the offices of the Commission and Direction; the other 11 buildings were under the management of chiefs of departments, who fully justified their appointment by the energy and administrative capacity which assisted so greatly in bringing their departments to so successful an issue. Besides the above-mentioned, the Music Hall and Casino cost 71,300*l.*, and covered 4 acres; the Forestry Building, 16,500*l.*, covering 2·5 acres; the Dairy Building, 6,000*l.*, covering ·5 acres; the Stock Pavilion cost 12,500*l.*, and covered 2·8 acres, and the stock-yard sheds about 40 acres; the freight houses occupied 1 acre, and the saw-mills nearly 1 acre. A word should here be said regarding the Leather Building, which was unique in character, the exhibits being demonstrative of every appliance in which that useful article is employed.

Other constructions erected by the Exposition Company were the Monastery of La Rabida, the Terminal Station, the Colonnades and Peristyle, the Service Buildings, Photographic Buildings, Fire and Police Houses, Silos, Model Buildings, and others. The Exposition Buildings, counting gallery space of 45·9 acres, afforded a total space for exhibits of nearly 200 acres, (1679)

and about 90 acres in the grounds were covered by smaller buildings. It is to the use of steel as a framework and to staff as a coating to the wood-sheathing that these constructions have been possible. The whole cost of the 394,495 pieces or squares used cost about 280,000*l.*, and the 295 colossal statues which adorned the main buildings, the bridges, and grounds were also made of staff at a cost of 100,000*l.* The great fountain cost 13,000*l.*, and the statue of the Republic 4,420*l.*

Manufactures.

The Manufactures and Liberal Arts Building, containing the two departments from which it took its name, measured 1,687 by 787 feet under one roof; the central hall was 1,276 feet long by 387 feet broad, and the roof was supported by 22 steel arches of 125 tons weight each. A promenade running round the top of the roof at a height of 245 feet was reached by elevators. The Department of Manufactures contained 1,090,000 square feet of space, and that of the Liberal Arts 450,000 square feet, half being devoted to American exhibitors and half to those of foreign countries, and yet seven times as much space was applied for in this country as could be allotted, and all the demands of foreign countries could not be met. Around the clock tower in the centre of the hall were grouped the four great manufacturing nations. The United States relied on individual exhibitors for decorative instalment, except that, when it was known what elaborate pavilions Germany and France intended erecting, a handsome and lofty façade was constructed to front the clock tower. The German Section was surrounded by an imposing structure rising with a series of towers, arches, and statuary, to a great height from an entrance of magnificent wrought-iron gates. The French Section was remarkable for the beauty of the façade surrounding the space allotted, and for the dignified elegance and taste with which their exhibits were arranged as one display. The individual efforts of the British exhibitors, in their separate disposition affording no collective impression, were unable to avoid a scattered appearance, or meet the elevation which so lofty a building required in the position occupied. Austria, Russia, Japan, Denmark, Spain and Italy erected handsome pavilions, and other countries surrounded their exhibits with some decorative enclosure.

The exhibits of every nation were highly representative of their various manufacturing and industrial capabilities, but even their characteristic features are hopeless to detail. Those of some countries were not completely installed till a month or six weeks after the opening, and in one or two instances till a later date. The display in the Liberal Arts was almost entirely confined to the gallery, which was filled with most interesting and valuable exhibits, but, owing to their position and the number of splendid things to be seen in this building without the trouble of mounting the staircase, they were visited comparatively by a few. The Liberal Arts display was greatly of an educational, commercial and publishing, and instrumental character. Two important branches owing to want of space were relegated to another and distant building.

The Machinery Hall contained 350,000 square feet of space, Machinery. half of which was allotted to foreigners, and half to Americans; the applications in this building were four times the power of allotment. Almost every engine of the newest type was represented up to 2,000 horse-power, and a remarkable feature was the progress made in the improvement of steam engines within the last few years. Some of the machinery was not in working order till June.

The Department of Agriculture included not only the Agricultural Hall, but the Forestry, Dairy and Live-stock Buildings. The display in the Agricultural Hall was most comprehensive and exhaustive, while the building itself was, perhaps, next to the Art Gallery the most perfect and impressive of all the constructions. Nearly every country presented a characteristic display of very high quality, which was with scarcely an exception enclosed with a decorative surrounding. A large number of the exhibits are secured for some agricultural college, experimental farm, or State museum in this country, or have been donated to the Columbian Museum. The Forestry Building was a novel and unique construction with colonnades of various native woods, and contained over 100,000 specimens of different woods and forest products not only of this continent but of many foreign countries. Nearly every exhibit is destined for some museum or individual collection. The Dairy Building was of much value in a scientific point of view, showing results of experiments to those interested in the various products. A large number of valuable animals were exhibited in the stock yards, and great competition ruled in the high grades of cattle, horses, and sheep.

The Fine Art Gallery was generally considered the most beautiful Art Gallery. and grandest building in the grounds, and consisted of a central building with two connected wings. It has afforded the best opportunity this country has ever had of comparing the different schools of Europe, America, and the East. Probably a larger number of people visited the gallery than any other building in the grounds for the purpose of examining the exhibits, and towards the close of the Exposition there were many days when it was impossible from the crowd to see the most popular works of the 9,400 pictures exhibited. Sweden and Norway, Russia, Holland, Austria, and other States, whose talent was little known here, came prominently forward and showed some beautiful work, while some distant countries as Japan took opinion by surprise. The United States were well represented by their best artists. Germany and France were also largely represented in their different sections, but no country had a more representative show than Great Britain. The sales unfortunately were small and disappointment has generally been felt, but to the financial crisis which commenced in July must be greatly attributed the reason that so large a majority of the works return to their own country. The smaller collections appear in this respect to have been favoured in proportion more than the larger galleries. There was also a loan collection embracing a few fine examples of well-known names.

Electricity. Electricity was a great factor in the success of the Exposition. The illuminations, intramural railway, electric launches, the lighting of the grounds and buildings, together with the display in the Electricity Building added greatly to the attractions, which would have been far less brilliant but for the advance made in this science. It is the development of the use of electricity and its application to so many new purposes, shown in this building on a more advanced scale than on any previous occasion, rather than the extent of discovery in this branch of science which is remarkable; perhaps the most distinct invention is the telantograph, by means of which facsimiles of letters and drawings are accurately transmitted instead of communications being made by the expression of signs. By other machines is shown the manner in which electricity is adapted to cloth cutting, egg hatching, boot blacking, cooking and a variety of other uses. New systems and strides made have led by greater economy to bring the power of electricity to more practical service, and this department afforded a grand opportunity of noting the practical use of this great power, which may be said to have sprung up within the last 10 or 15 years.

Transportation. The Department of Transportation covered about 20 acres, including isolated exhibits, among which were the Krupp exhibit, and the White Star Steamship Company's Pavilion. One third of the space in the building was allotted to foreign countries, and of these Great Britain, Germany, and France were especially well represented. Transportation has well merited the distinction given it in setting apart a separate building to this subject, as shown by the interest which the exhibits attracted. Every appliance and method of transportation was shown, and the development of systems from the earliest stage was exemplified. The railway engines and models of ships drew universal admiration.

Horticulture. It took a long time to prepare for the installation of the display in the Horticultural Department so as to counteract the effect of transplanting and transporting, for which purpose nurseries were established for the recovery and raising of many thousands of plants. The great horticulturists of America, and about 30 foreign countries, contributed rare and beautiful collections, but it is scarcely invidious to say that the palm was generally given to the exhibit of New South Wales, which with an unparalleled display of tree ferns and other plants presented a magnificent show. Fresh fruits from California, Florida, Canada, and other parts, and fine specimens preserved in glass cases provided an opportunity of comparing the fruit products of different localities. Wines and viticulture formed also an important part of the exhibits in the Horticultural Building. There was a separate Department of Floriculture, under the auspices of which collections of plants were exhibited and gardens laid out, while the wooded island was greatly arranged as a floricultural display, and palms in great quantity adorned the buildings and grounds.

Mines and Mining. The Mines and Mining Building included not only those

industries, but metallurgy, mine engineering, geology, mineralogy, chemistry, and many other branches of allied arts and sciences. Nearly all foreign countries were represented. The exhibit of New South Wales, the iron and steel of the German Section, the diamond cutting and washing of Cape Colony attracted great attention, and the general scope of the display may be said to have never before been equalled. A number of the exhibits have been donated to the Columbian Museum.

The Fisheries Building was a peculiarly attractive construction, Fisheries.
not only from its graceful architecture, but from the collection from different nations of every description of appliance connected with the trade. The exhibits afforded many a lesson in showing the methods adopted by different people. The Norwegian exhibit appears to have been considered the most complete in the building.

The Anthropological Department was in many respects the most interesting at the World's Fair. A separate structure for this department was erected at a late stage of the construction of the buildings, no space being available elsewhere. Here also were relegated other subjects intended for exhibition in the Liberal Arts Department, the Sections of Hygiene and Sanitation, Archaeology, Charities, Natural History, and Geology, for which there was no room. The building was not nearly finished at the date of the opening of the Exposition, nor were the exhibits fully installed when visitors were admitted in the middle of July. For two years, however, preparations had been organised by the chief of the department, with the result of the finest display of American antiquities ever collected together. This was the leading feature in the building, a systematic and comprehensive exhibit of the anthropology, ethnology, and archaeology of America prior to the discovery by Columbus. Collectors were sent to Yucatan, Alaska, the West Indies, Guatemala, Honduras, Mexico, Costa Rica, and almost every part of North, Central, and South America; much fresh ground was broken, which led to interesting discoveries at the burial grounds of Ancon, in Peru, and to collections of relics from parts before unexplored, such as those of the mound builders in Ohio, Missouri, and other States, and of the cliff dwellers of Colorado. Seventy assistants were employed collecting measurements of the bodies of Indians. There were also collections of antiquity shown by foreign countries, notably by New South Wales, but the main interest centred in American anthropology, to which British Guiana and Canada contributed valuable collections, the latter illustrative of the Indians on the Pacific Coast. There was a fine collection of pre-Indian copper tools and implements. The Anthropological Building also contained collections of all the games of ancient and modern time, and in the gallery complete exhibits of natural science sent from different States and parts of the Continent of Europe. More than half of the whole collections in the Anthropological Building will remain in this city, donated to or purchased by the Columbian Museum. Connected with the department were Anthropo-logical.

several outside exhibits grouped together, namely, casts of the ruins in Central America, the dwellings of the cliff dwellers, of the Indians of the North Pacific, and other tribes. The prosecution of research and the strides made in science at the American Universities are remarkable. The display of instruments in this building, such as charts, apparatus for gauging sight and sense of colour, chromoscopes, appliances for colour mixing, contrivances for investigating problems, and many others, were valuable to those interested, and some valuable tests are said to have been made.

La Rabida.

It is scarcely possible to overrate the historical interest attached to the collection of relics of Columbus exhibited in the Monastery of La Rabida. The building was an exact reproduction of that monastery so associated with the career of the discoverer of America. It was under the Department of Anthropology, but the expenses of the exhibits were defrayed by the Government of the United States. The exhibits, which numbered 1,067, included loaned collections of original papers, documents and relics, portraits, charts illustrative of the geographical knowledge and navigation of the period, scenes associated with the different voyages and whole career of Columbus, scenes connected with life and times of Ferdinand and Isabella, and other very interesting objects.

Woman's Building.

The Woman's Building, whatever may be the opinion as to the idea of separating the work of women from that of men, contained some good exhibits, though much of women's best work was necessarily shown among the general exhibits in the different other departments where no distinction of sex was made.

Government Building.

The Government Building was constructed at the cost of the United States, and not of the Exposition Company. It covered 3·3 acres, and cost about 80,000*l.*, while the expense of the exhibits amounted to about 270,000*l.* The exhibits themselves were estimated at a value of 550,000*l.* It was divided into 11 departments, each under a chief who was a member of the Board of Management. The War Department was under the control of United States Army Officers. The Smithsonian Institute and the National Museum from Washington, the Departments of the Post Office and Justice, and the Fish Commission Exhibit, were among the other departments. Standing alone, it was a magnificent exhibition in itself of natural history and ethnology, of articles and materials. The crowds which flocked to see the exhibits testify to their very interesting character. The naval exhibit was an exact reproduction of the United States battleship "Illinois," built in the lake on a foundation of brick close to the shore at a cost of 20,000*l.*, and occupied ½ acre. It was under the command of a naval officer, and is said to have been presented to the State of Illinois.

Notes on the British and Colonial Sections.

Great Britain

Any enumeration of the British exhibits, remarkable for their

excellence, would be out of place in a short résumé of this nature. The standard of the whole display has been recognised as of the highest character, and the chief remark to be made is one of regret that the number of exhibitors was so limited. Whatever may have been the cause, whether the McKinley Act may have prejudiced some against going to expense where it might be thought no benefit would result, whether it may have been forgotten that in these days of advertising to sit still is to lose ground not easily regained while other manufacturing countries are pushing forward, it is unquestionable that the extent of the British exhibit did not come up to the expectations entertained of the recognised power and capabilities of the country. The indifference apparently shown in so many departments was not shared by other countries, nor can it apply to the exhibitors themselves, for their display was of splendid and artistic quality. The exhibits in the Manufactures Building were shown in separate, small, but handsome pavilions, erected by the different exhibitors at their own and considerable cost. These pavilions occupied the south-west central portion of the building, and contained many of the most beautiful exhibits in the whole Exposition, but not being surrounded by any decorative instalment or enclosure, were not up to the standard of effect suitable for so immense a construction, and consequently had a rather dwarfed appearance. The china and pottery display of Messrs. Daniels, Messrs. Doulton, the Worcester and other factories was greatly admired, the superior excellence of their work being universally allowed, as it was in many other branches of manufacture. Satisfaction seems to be generally felt at the results obtained, many specimens having been disposed of and orders given, and there is an opinion that further benefit will be derived by the different firms. Silversmiths and many other departments appear also to be satisfied with what they have done. In a few branches of manufacture little interest appears to have been taken, except for the purpose, by establishing show cases, of obtaining an award for advertisement, but generally it is thought that benefit in the future will result and an extension of trade is looked for. The number of British exhibitors in the Manufactures Department was 192 and in the Liberal Arts 104.

Comparatively speaking England was probably best represented and most fully in the Art Gallery and the Transportation Building. In the former department there were 1,130 works exhibited, of which 461 were oil paintings and 204 water-colours. This was a fine and representative collection, and very favourably compared with the exhibitions of other nations. It is difficult to imagine but that a higher opinion and appreciation of the English school has been established in America than was formerly held in comparison with the better known schools of some other countries. In this respect, and it is a general opinion, gratification may be felt at the display, though it is to be regretted that so few of the works of art found purchasers, only about 50, many of them water-colours which were greatly admired, remain-

ing in this country. In the Transportation Building the British exhibits were of a most interesting and exhaustive nature. It seems the universal opinion of engineers that the "Queen-Empress" engine, one of the fine exhibits of the London and North-Western Railway Company, was unequalled in excellence of work, and acknowledged to be the acme of perfection. The numerous fine models of ships shown by steamship companies attracted great attention.

In the Mines and Mining Department there were 34 British exhibits, of which two were fine collections severally formed by Mr. Brough and Dr. Ball. The other 32 were private exhibits of much interest. The two collections and most of the private exhibits are donated to the Columbian Museum. In the Agricultural Hall there were 75 exhibits, of which it is understood all but one obtained awards. The results obtained in this department, especially with regard to whisky, beer, and mineral waters are gratifying, and increased exportation is anticipated. The British exhibits in the Machinery Hall were limited in number, only 59 entries being made, but they were of high quality, and the "Williams" engine drew especial attention. It is a pity the section was not more fully filled. In the three Departments of Electricity, Fisheries, and Horticulture, the exhibit from Great Britain was small, and there was a comparatively limited show in the Anthropological Building. In the Woman's Building the exhibits deserved great praise and very favourable compared with those shown in other sections. The work of the Queen and of the Royal Family excited the very greatest interest. Some good Indian work was shown in the Manufactures Building. Exclusive of those in the Art Gallery and the Woman's Building the number of British exhibitors was 602.

The British pavilion, "Victoria House," stood apart on the edge of the lake in a conspicuous and beautiful position. It was certainly the best constructed and the most permanent building of any in the grounds, and depicted a half timbered manor house of the sixteenth century. The interior was handsomely fitted up and furnished in the style of the period, mainly as an exhibit. It cost about 12,000*l.* and its necessary removal is a subject for regret.

British
Colonies.

The British Colonies came well to the front, and universally drew remarks of praise and approbation not only by the extent but quality of their display. The exhibit of New South Wales and Canada fairly took the public by surprise. The arrangement of the colonial exhibits was excellent, and they were well set off by decorative enclosures which were at once simple and attractive. There is much advantage in such enclosure, as the casual visitor at once knows the limits of the country's exhibits he is visiting, whereas it so often happens that his attention is otherwise distracted by forced reference to some sign or board, or to a flag by some unknown, or to the name or town of the individual exhibitor, and from this want of cohesion he is puzzled to arrive at a certainty as to what section he may be in, or when

he may have passed the limits of the country he thinks he is visiting; besides the frame shows off and adds attractiveness to the whole exhibit and every work displayed.

Canada has been brought prominently forward in a manner Canada. which can scarcely fail to assure permanent benefit. Its chief exhibits were natural products, though the colony was represented in every department except electricity. Its cheese and butter exhibits were remarkable and gained a disproportionately large number of awards, beating all competitors; Japan is understood to have sent a special commission to examine and report on the methods adopted by the colony in these matters. The show of animals, especially sheep, met with great approval. The quality of Canadian fruit was generally recognised. The exhibit of grain and other products of the north-western provinces has shown what can be grown, and as a result many enquiries have been made with a view to settlement in those parts. The same applies to British Columbia, regarding which province overtures have been made by quite a colony of Austrian subjects for settlement with a view to fruit growing and general farming. Canada was most interestingly represented in the Anthropological Department with a fine collection of Indian antiquities from British Columbia.

The Canadian pavilion was built of Canadian woods at a cost of about 6,000*l.*, and was well adapted to its purpose for containing the head-quarter offices and those of each provincial commission. It was always hospitably open and full of visitors, though it contained practically no exhibits.

New South Wales produced a very decided effect, and took a New South Wales. prominent and well-merited position by the magnitude, excellence, and diversity of its exhibits. Her trade with the United States is considerable, and the impression is that the result of her magnificent display is favourable to an increase of commercial relations; this can only be seen in the future, but benefit is expected. New South Wales had 1,200 exhibits for competition and 400 not for competition, and is understood to have been granted more than 600 awards. The show in the Agricultural Building was remarkable, especially that of wool, which was all sold. If wool should be admitted free into the United States, as seems now likely to be the case, Australia will in all probability export largely to this country. The splendid show in the Horticultural Department has already been referred to, as well as that in the Anthropological Department. A fine display was also made in the Mines and Mining Building. The pavilion was a plain and suitable construction, costing no large sum, and was sold for 40*l.* for salvage. It contained little else in the way of exhibits but paintings of scenery and of the products and flora of the country.

The Ceylon pavilion was designed and constructed in the Ceylon. island, of a great variety of native hard woods, and was brought over in separate pieces and erected by native workmen on its site between the French and German Buildings on the lake front. It

was designed in reproduction of ancient temple ruins, with carved pillars and other woodwork, and was one of the only buildings on the ground which gained an award. It has been sold for 560*l.* and could probably not be duplicated for 15,000*l.* It was full of interesting and characteristic relics, with complete and valuable collections of the industries, art work, and curiosities of the island. Ceylon was also represented by a pavilion in the Manufactures and Woman's Buildings. Through the energy of the commissioner Ceylon tea seems likely to find a good market in this country, where formerly it was unknown; a store has been established in Chicago for the sale of the tea, and this movement will probably extend to one or two other cities if it meets with success.

Jamaica. Jamaica had no separate pavilion, but was well represented in the Manufactures Building. Her higher grade coffee has been brought to notice in the United States, where it had not previously found a market. By the wide circulation of a handbook on Jamaica, written by the commissioner for the occasion, 10,000 copies of which were distributed, attention has been drawn to the island as a winter resort.

Trinidad. The cocoa of Trinidad has been brought to notice by the exhibit of that island in the Agricultural Hall; it is thought that good has been done as the product of the island had not before found its way to this country. Attention has also been drawn to the woods, which it is hoped may lead to the establishment of saw mills by American capital, and to the climate as a winter residence.

British Guiana. British Guiana made a splendid show in the Agricultural Hall, besides a most interesting exhibit in the Anthropological Building. Attention has been attracted to the woods of the colony, and it is expected some result may follow in drawing American capital and labour to the mines.

Cape Colony. The exhibit from the Cape of diamond washing and cutting in the Mines and Mining Building has been already described; it attracted the most interest perhaps of all the good exhibits of the colony.

India. There was no Government exhibit from India, but some assistance was rendered. Besides a small installation in the Manufactures Building, an elegant pavilion was erected in the grounds of Indian architecture, handsomely decorated, at a cost of 3,000*l.* Here was shown, more in the light of a private speculation, a large collection and great variety of Indian work, old and modern, arms and curios, which always drew a crowd of visitors. Another prominent feature of the pavilion was the exhibit of Indian tea, scarcely before known in this part of the country; an arrangement has been made with an important house in Chicago, with some 400 agents in Illinois and other States, as sole agent for the sale of this tea, and it is thought a large business will be done. The Indian pavilion has been sold for 240*l.*

Some of the exhibits from the Colonies, mostly collections

of various woods, are intended for the Imperial Institute in London.

Notes on Foreign Countries and the States.

Counting the British and colonial buildings there were 18 ^{Foreign} separate foreign pavilions, which contained the offices of the ^{Buildings.} different commissions, and in some cases the entire exhibits of their country. Many of them cost a considerable sum of money, and practically there will be no salvage, indeed in one or two instances a small sum has been given on condition of removal.

The most imposing and largest construction was the German Building which cost more than 30,000*l*. It was in imitation of Teutonic architecture at a period of about 300 years ago, and besides offices contained many exhibits chiefly connected with bibliography and church decorative work. The French Building was of distinctly classical design, costing 10,000*l*., and was composed of two pavilions connected by a colonnade and enclosing a shady garden. The south pavilion, a reproduction of the Salon des Ambassadeurs at Versailles, was devoted to relics of Lafayette, the other contained exhibits of the municipality of Paris. The Swedish Building was characteristic of the church architecture of the country some centuries ago. It was a large and impressive construction, and contained the whole of the exhibits of Sweden, which were, especially the iron and steel, of much interest. It cost about 8,000*l*. The Norwegian pavilion, built of the woods of the country, was small but illustrated its origin. The Spanish Building was not completed for some time after the Exposition was open. It was of Moorish architecture and composed mainly of one large hall, a reproduction of the Board of Trade at Valencia. Beyond a few large pictures there were no exhibits shown. The Japanese pavilions on the wooded island were favourite resorts to visitors, and as they are taken over by the Park Commissioners, will remain where they are. The Brazilian, Colombian, and Costa Rican Buildings were not open till the third week in July. The Brazilian was a very handsome and striking structure, costing about 18,000*l*. and measured 148 feet square; a large collection of coffee was the chief exhibit, the country being well represented in the Manufactures Building. The main object of Costa Rica was evidently to bring its coffee into notice, but the pavilion was full of very interesting exhibits of natural history and native products. The exhibits of the United States of Colombia were confined to their own small pavilion, which cost 2,000*l*., and was remarkable for a collection of Indian antiquities and of the natural resources of the Republic. The pavilion was opened on July 20, the 83rd anniversary of Independence. The Guatemala exhibits were in a separate pavilion, which was opened on July 3, and cost 6,000*l*.; they mainly consisted of natural and industrial products, the fauna and flora of the country and Indian relics. The Republics of Venezuela and Hayti in like manner

were not represented except in their own pavilions. The Venezuela pavilion was noticeable for some remarkable paintings and antiquities, and that of Hayti for a fine display of its woods and other resources. The Turkish pavilion must not be passed over as it contained many beautiful exhibits of fine embroidery and woodwork.

All the Foreign Buildings, except the Japanese pavilions, and all the States Buildings, being grouped in the northern or what was called the improved part of Jackson Park, must be removed by May 1, 1894, according to the terms agreed on between the Exposition Company and the Park Commissioners.

The Art Gallery, however, which is also situated in that part of the ground, is allowed to remain. Those countries which did not erect pavilions held their offices at their sections in the Department Buildings. A detachment of 60 sailors under a naval officer was attached to the French Commission during the six months the Exposition was open. Detachments of Italian and Russian sailors were also in attendance. Germany sent over two military bands, and an Austrian and Mexican band was also present for the occasion.

With regard to the exhibits of foreign countries in the different Departments the field is too large to attempt particularity, which might lead to unfair omissions. They were all of a high and representative character and very great expense was incurred. Great Britain and her colonies have been already alluded to. Germany certainly took the lead in the magnitude and completeness of its representation, no less than in the Government assistance rendered; the number of German exhibits, counting 747 in the Art Gallery and 156 in the Woman's Building, was 6,134. France was also comprehensively and characteristically represented and her exhibits were greatly admired; the sections indeed of all foreign nations were full of beautiful and valuable work, Spain and some other countries were conspicuous for the elaborate manner in which their sections were installed. The Japanese display like that of New South Wales, the country being less known, may, perhaps, be specially mentioned as having excited surprise and admiration, and benefit will, no doubt, accrue to this and other countries which have made the most exertion. It seems very generally to have been expected that larger purchases would have been made, and some disappointment is felt at the comparatively small value of the exhibits which have been sold. A great many foreign exhibits have been presented to the Columbian Museum.

The following is a list of the appropriations of foreign Governments of the amount of 10,000*l.* and upwards, the figures being given in round numbers:—

Country.						Amount.
						£
Germany	..	..	..	..	..	165,000
France	..	..	..	..	..	151,000
Japan	..	..	..	..	..	130,000
Brazil	..	..	..	..	..	124,000
Great Britain	..	..	..	..	..	60,000
New South Wales	..	..	..	..	..	50,000
Spain	..	..	..	..	..	44,000
Guatemala	..	..	..	..	..	41,000
Morocco	..	..	..	..	..	31,000
Costa Rica	..	..	..	..	..	31,000
Peru	..	..	..	..	..	29,000
Ecuador	..	..	..	..	..	25,000
Sweden	..	..	..	..	..	22,000
Austria	..	..	..	..	..	21,000
Canada	..	..	..	..	..	20,000
Colombia	..	..	..	..	..	20,000
Argentine Republic	..	..	..	..	..	20,000
Netherlands	..	..	..	..	..	20,000
Paraguay	..	..	..	..	..	20,000
Denmark	..	..	..	..	..	13,500
Ceylon	..	..	..	..	..	13,000
Greece	..	..	..	..	..	12,000
Belgium	..	..	..	..	..	11,500
Norway	..	..	..	..	..	11,300
Mexico	..	..	..	..	..	10,000
Cape Colony	..	..	..	..	..	10,000

Making, with 18 other countries, which appropriated smaller amounts, a total of 1,150,000£.

The different States of the Union appropriated various sums, The States. from Illinois with 160,000£, New York with 120,000£, California with 110,000£, and Pennsylvania with 72,000£, to smaller amounts, making a total of about the same sum as the foreign appropriations. The New York State Building was the most striking of the State Buildings, representative of a palatial villa of Italian Renaissance style, and covered 18,214 square feet. The Illinois was by far the larger Building but not so pleasing in effect. The designs of many of the State Buildings were picturesque, but there was no architectural harmony, and they were regulated, as in the case of the foreign pavilions, by no provision of the original plan with regard to general congruity. The Buildings were variously fitted up and were used as offices and club-houses, though in some a few exhibits were shown. Being all grouped in the north and north-west part of the grounds they must all come down, and it does not seem certain that any will be removed for construction elsewhere. The value of salvage is extremely small, if any; some have been put up to auction, or disposed of for wreckage and removal. With regard to the exhibits of the different States the same difficulty arises as with foreign exhibits in attempting to make any special mention. New York was well represented in every department, the show of fruit from California

merited high commendation, mining interests were well represented by the mining States, and machinery by the East and Pennsylvania. The exhibits in the Electricity and Transportation Buildings were remarkable, and the displays of natural products and resources were most comprehensive and characteristic of all the different districts of the United States.

Expenses of
exhibitors.

The expenses of exhibitors were enormous, far beyond those at any previous Exhibition. Some preparation was required from all in the shape of pavilions, show cases, or some expense of installation from which practically no salvage could be recovered. In the Machinery and Electricity Departments expenses of this description were extremely heavy. Distances were great, and transportation, especially to foreigners, proportionately costly. There was also the cost of maintenance and management, the travelling expenses, and hotel bills of exhibitors and employés, besides the time devoted to the Exposition. Some spent much in installation, some spent little. It seems to be thought that though not much was sold, the advertisement will pay, and exhibitors expect that they will in time get back many times the outlay they have gone to. Should their expectations be realised—and some think that there are already signs that they will be—the benefit would naturally, and in a great measure, be at the cost of those who did not exhibit. The total number of exhibits was about 92,000, of which about 22,400 were American. It is impossible that any estimate can be made of the exact cost to exhibitors; a calculation has been made, which puts down the sum of 200*l.* to every American exhibitor; whether this is at all correct it is difficult to say, but the expenses to foreign exhibitors have certainly been far heavier. Perhaps at some future period more accurate information may be available.

Entertainments and Attractions.

A distinguishing feature of the Exposition was the number of amusements and shows, which although of an exhibitory nature, were outside the line of exhibits proper. No doubt these were intended to and did attract a large number of people, though it may have been thought by others that a few of them took too much the character of shows at a fair, and were scarcely in harmony with the serious tone of an industrial exhibition. They may have even distracted some attention from the exhibits in the Department Buildings of more scientific value; but they were all worthy of a visit. One of the most striking attractions was the illumination of the beautiful Court of Honour; the innumerable electric lights, following the string lines and distinguishing forms of the buildings, the terraces and the water's edge, together with the electric fountain, produced an impression which cannot be imagined, and there were few who did not stay till late to see this magic scene. It was a favourite pastime as night came on to take a trip round the basin and lagoons, and see the illuminations

from an electric launch or a gondola. The display of fireworks, which took place three times a week, has perhaps never been equalled in any city. Music was also a great attraction, and was treated in the manner of an exhibit. The orchestra, composed of 114 artistes selected for their talent from Europe and America, had practised and rehearsed together for more than six months before the opening of the Exposition, and merited the highest eulogy. A series of concerts was given at the Music and Festival Halls, embracing the best works of various schools, and these were occasionally varied by solo or choral performances or by concerts of a special nature. Bands also played in out-of-door pavilions, and in the interior of the principal Exposition buildings.

Almost every nation celebrated its nationality at a fixed date, and nearly every State had its particular day, which added much to the attendance on those occasions. These celebrations were of varied character, but always accompanied by national processions through the grounds, generally after similar processions through the city, when concerts, crowded meetings with addresses, or some particular representation or amusement took place till special fireworks in the evening ended the proceedings.

The Midway Plaisance was always a great attraction, and perhaps on no previous occasion were so many instructive and interesting shows collected together as on this part of the grounds, or on so large a scale. It was a world's fair in itself, and was always a gay, crowded, and busy scene. The Midway was included in the admission to Jackson Park, but a separate charge was made for visiting the different shows, which were established under concession granted on condition of a percentage of returns being handed over to the Exposition Company. The shows covered the whole space of 1 mile in length by 300 yards in width, adjoining Jackson Park. The street in Old Vienna, the street in Cairo, the German Village, and the Javanese Village were among the most perfect and complete. There were Turkish, Irish, Chinese, Japanese, Persian, Esquimaux, Indian, Bedouin, Arabian, Dahoman, and other villages and shows, peopled by natives in their various costumes, and illustrative of different lands, with characteristic music and other entertainments. And besides these there was the Ferris Wheel, which gently revolved to the daring height of 260 feet. The Midway may have been treated rather as a place of amusement, but as demonstrating the life and customs of a great variety of people it afforded a fund of instruction.

Midway
Plaisance.

Auxiliary Congress.

A remarkable feature connected with the Exposition was a series of auxiliary congresses, chiefly held at the Art Institute in the city of Chicago, towards which institute the Exposition Company appropriated the sum of 40,000*l*. The system was instituted with a view to the discussion and advancement of almost every

branch of science, art, philosophy, and social economy, and the various congresses were conducted with the greatest harmony under the auspices of the president, Mr. Bowney. There were 210 separate congresses assembled, at which addresses were made on widely differing matters, and the 1,245 sessions were attended by scientists and experts from all parts of the world. The congresses on art, commerce, and finance, education, music, literature, engineering, moral reform, agriculture, real estate, and social and economic science were among the most noteworthy and popular of this remarkable series. The congress, however, which attracted perhaps the widest attention was the Parliament of Religions, which was attended by about 200,000 people, and lasted several days. This cosmopolitan gathering included distinguished representatives of every faith and denomination—Christian, Mohammedan, Hindoo, Buddhist, and members of various sects, and may possibly tend towards a more universal respect for the opinions of others in matters of conscience. On other subjects these meetings cannot fail to have spread the scientific advancement made in different countries over a wider surface, and to have induced a more extended acquaintance with, and probably a higher appreciation of, the views and efforts of other people. There were altogether about 6,000 addresses delivered at these most successful gatherings.

Management.

The management throughout was admirable, and everything worked wonderfully smoothly. It was almost a triple management: the National Commission of 100 members appointed by Government, the Local Board of Directors which supplied the funds for the undertaking, and the Director-General appointed by Congress with whom all orders originated. It may not have been easy at all times for these elements to work with perfect harmony, but Mr. Thomas W. Palmer, the President of the National Commission, was ever ready to lend a sentiment of peace to conflicting views, and Colonel George R. Davis, the Director-General, who was responsible for the management from the commencement, not infrequently stood between the Commission and Direction. To these men, animated with the one desire for the success of the Exposition, is due the accomplishment of the colossal enterprise. It was a work of enormous labour, ably assisted as they were by the chief of construction and the chiefs of departments in the different buildings, but the success attending their efforts must be a lasting satisfaction. The comfort of visitors was amply attended to, and every convenience was at hand, post officers, telephones, telegraphs, emergency hospitals and medical attendance. Seats were provided in the grounds and some of the buildings. The intramural railway, electric launches and wheel chairs afforded transportation from one part to another; the Illinois Central Railway, the elevated railroad, car lines and

steamers provided every facility for accommodating the crowds of visitors to the grounds, special services having been established which fully met the occasion, and no accident except from the carelessness of the individual occurred. The fire brigade was admirably organised, and with one exception no great conflagration occurred. This exception was the total destruction of the cold storage building and its contents, when fifteen lives were lost; beyond this, the whole damage done by fire did not exceed 200*l*. The Columbian Guards numbering 2,000 men, and organised in the spring of 1892 for the occasion as a military body under Colonel Rice, a distinguished officer of the United States army, were ever ready to render assistance, to guide or give information and protect visitors, to guard the grounds and buildings and carry out the regulations of the directors. It was a police organisation of a very perfect character. The secret service bureau was also organised six months before the Exposition opened, and was composed of 300 men selected from the different States with a few from England and Canada. Through their energy many notable criminals were brought to justice; altogether 675 arrests were made. A considerable number of articles were found in the grounds, most of which were returned to the owners. There were 250 children lost and claimed; on Chicago Day no less than 52 lost children were taken care of at the headquarters of the Columbian Guards, there being no other place available, though there was an excellent children's crèche connected with the Woman's Building, where parents left their children to be taken care of till they returned, and in only one case was a child not claimed. The water supply in the grounds had a capacity of 64,000,000 gallons a day, besides which there was abundant supply of drinking water, both filtered and spring water. The accommodation at hotels and other places, owing to the number erected for the purpose, was ample, though from the rush of visitors during the last month, and in anticipation of greater crowds all through the time charges were high, and on one or two occasions difficulty was found by some in locating themselves for the night.

The whole business management of the Fair was excellent; there was but one real element of discord and that was the question of awards, which appears to have given much dissatisfaction. It was a one juryman system; there was no question of comparison; the award was practically a standard of excellence. A medal and diploma were supposed to be given to all exhibitors who obtained an award. The medals were to be similar for any description of article, with no gradation of merit or indication of superior excellence by any class distinction; the diploma was supposed to specify the quality of merit in the terms used by the individual juryman assigned to report on the particular exhibit where an award was given. Many complaints and discussions arose; concessions were made on different points at different times, and there does not appear to have been exact uniformity in the system adopted in different departments. The Fine Arts

jury was the only one which essentially differed from the one juryman system, and the question of award to each work was submitted to the vote of the whole jury. France, Belgium, and Norway withdrew the whole of their exhibits from competition before the work of judging commenced, and there were some partial withdrawals. The French changed their committee of judges into one of recorders, who examined the exhibits of different countries with a view to reporting the progress made. It was hoped that by this time the exact number of awards obtained by each country could be stated, but the committee on awards has removed to Washington, and the revision seems still in process. The awards will no doubt be of advantage for advertising purposes, and in a few years the feeling as to the system adopted may be forgotten.

Attendance.

The attendance scarcely realised expectations. In May, the exhibits being imperfectly installed, the number of visitors was small, and though there was a gradual increase, it was not till September that the grounds were fairly thronged. General tightness of money and the financial crisis in July unquestionably delayed many from visiting the Fair: on the other hand it must be allowed that the season was most favourable; bright sunshine and fine weather lasted the whole summer, and during the six months of the Exposition there were only two rainy days sufficiently wet to diminish attendance.

The Exposition as far as the United States Government was concerned was closed on October 30, so that the gates were officially open 179 days. Visitors were admitted before the opening and since the closing, and on October 31 the paid attendance was 50,713 since which day it rapidly fell to almost nil. The first three Sundays in May and the fourth Sunday in July the grounds were closed to the public, the question whether the gates should be open on that day of the week having been for some time undecided. The largest weekly attendance was from October 8 to October 14, the admissions having numbered 2,114,953, and the most crowded day was October 9, Chicago Day, the anniversary of the great fire in 1871, when 716,881 people paid entrance fee, counting free admissions 761,942 persons entered the gates. Taking the number of visitors each month, in May the number of paid and free admissions was 1,531,984; in June, 3,577,834; in July, 3,977,502; in August, 4,687,708; in September, 5,808,942; and in October, 7,955,561. The largest record in May was on Inauguration Day, 128,965 paid admissions; in June, the 17th, 156,630; in July, on the 4th, 213,273, Independence Day; in August, Banner Day the 24th, 243,951, and British Empire Day the 19th, 168,861; in September, the 9th, California, Utah, and Grand Army Day, 231,522, and on three other occasions the record exceeded 200,000; and in October, Chicago Day the

9th, 716,881, while on two other days the record exceeded 300,000, and on Italian Day, the 19th, the number was 275,217.

The total free and paid admissions were 27,539,521, divided as follows:—

FREE ADMISSIONS.

	Number.
Complimentary cards	244,988
Full term photographic passes	1,050,885
Monthly photographic passes	1,679,931
Special press passes	66,060
Workmen's passes.. .. .	347,811
Trip passes	7,068
Return cheques	1,703,448
Bureau of music passes	59,189
Total	6,059,380

PAID ADMISSIONS.

	Number.
General admission tickets	3,256,000
Daily admission tickets	16,912,596
Railroad coupons	55,991
Children's tickets	1,255,554
Total	21,480,141

The total admissions at the Centennial Exhibition at Philadelphia in 1876 were 9,610,966; and at Paris, in 1889, 28,149,353. The crowds were remarkably well conducted, scarcely any accidents or disturbances occurred, and during the whole time only 113 arrests were made for inebriety.

Financial Position at the Close.

In a financial point of view the undertaking was not so successful as was anticipated. The calculation originally made was that the Exposition could be constructed and conducted for 14,000,000 dol., namely, 7,000,000 dol. for the buildings, 3,000,000 dol. for administrative and other expenses, and 4,000,000 dol. for contingent fund. The expenditures, however, exceeded expectations, for as the work advanced so it seemed to increase in magnitude, while the cost of much of the material increased, and labour was exorbitantly paid owing to the greater demand for skilled hands to complete the work within a limited time. It is probable some money was wasted, not intentionally, rather from lack of experience, but no murmur was heard in view of the marvellous effect produced. It will be recollected that, in

the first instance, more than 1,000,000*l.* was raised by subscription from shareholders, and another 1,000,000*l.* was subscribed by the city under sanction of the State Legislature to meet the demands of Congress, and as the magnitude of the plans developed an appeal was made to the United States Government, which resulted in a donation by Congress of 500,000*l.* in half-dollar souvenir coins, which partly realised a premium. Bonds were subsequently issued to the amount of 900,000*l.*, and a floating debt was contracted of nearly 200,000*l.*, but those were paid off and the Corporation was free from debt on October 9. The cost of conducting the Exposition was great—about 120,000*l.* a month—and for the first few weeks was scarcely exceeded by admission receipts. The cost would have been several hundred thousand pounds more had not the system of loaning been adopted; the machinery in the Mining and Electricity Buildings was erected by private companies as exhibits, lending the use of the power to the Exposition Company. The contract for the roads was on the same principle, the roads being laid down by contractors, with whom it was arranged that the material belonged to and was to be removed by them, whereby money was saved. The actual expenditure of the company up to the close of the Exposition was 5,266,090*l.* To this must be added Foreign and States Appropriations, about 2,300,000*l.*; United States Government Appropriation, 400,000*l.*, besides the cost to private exhibitors, and the expense incurred by the concessions, to form some idea of the magnitude of the Chicago Exposition of 1893.

Balance-
sheet.

According to the report of the auditor the receipts and disbursements of the various departments of the company from the date of its organisation to October 31, 1893, including all entries applicable to that period up to November 12, 1893, were as follows:—

RECEIPTS.

Description.	Amount.
	£
Capital stock	1,155,499
City of Chicago—proceeds of appropriation ..	1,030,928
Souvenir coins	397,757
Premium on souvenir coins	106,992
Gate receipts—	
Pre-exposition period	58,237
Exposition period	2,127,384
Post-exposition period	5,875
Concession receipts—	
Pre-exposition period	35,295
Exposition period	727,606
Interest on deposits, and exchange	17,934
Miscellaneous receipts	141,458
	5,804,365
Liabilities	18,074
Total	5,822,439

DISBURSEMENTS.

Description.							Amount.
							£
General and operating expenses	..	..	..	..	..	..	1,469,534
Preliminary organisation	..	..	..	..	..	..	18,696
Construction expenditures	..	..	..	..	..	..	3,777,860
							5,266,090
Assets	..	..	..	..	..	..	556,349
Total	..	..	..	..	..	..	5,822,439

The total receipts, therefore, up to November 12, were 5,804,365*l.*, and the total expenditure 5,266,090*l.*, and deducting liabilities from assets a balance was left to the company of 538,275*l.* From this balance of net assets may be deducted such obligations (exclusive of the 18,074*l.*) as are in sight, but not included in any part of the expenditures up to October 31, 1893, amounting to 154,257*l.*, which would seem to leave a net balance of 384,018*l.* over and above all liabilities as far as ascertained. Whether this sum will be available for distribution among the shareholders will depend upon what arrangement can be made with the Park Commissioners or what salvage may be derived from the buildings, or what it will cost to remove them and deliver Jackson Park over to the Commissioners, as agreed, in the condition it was in before the works were commenced.

The liabilities mentioned consisted chiefly of accounts payable, and the available assets of cash in Chicago banks with about 33,000*l.* of souvenir coins remaining on hand.

Referring to the receipts the principal items, under the head of miscellaneous, expressed in dollars, were—electric lighting, 146,671 dol.; employes badges and passes, 107,153 dol.; photographic receipts, 83,736 dol.; terminal receipts, 70,717 dol.; power and light in suspense, 53,273 dol.; and storage on empty cases, 43,057 dol.

With regard to the disbursements the principal items under the head of "general and operating expenses" are given as follows:—

Description.	Amount.
	Dollars.
Archæological and ethnological examinations ..	127,575
Advertising	86,507
Attendants and labourers	153,682
Commissions	156,865
Concession expenses	88,869
Dedication expenses	211,033
Exposition symphony, orchestra	135,589
Fire protection	249,285
Floricultural gardening	61,340
Foreign agents	118,045
Gate expenses	336,439
Interest on debenture bonds	231,961
Insurance (and accident 41,619 dol.)	176,164
Installing exhibits	297,779
Janitor service	212,542
Legal expenses	65,283
National agitation	65,203
Operating electric plant	118,622
Operating power plant	355,981
Operating railway	104,473
Pyrotechnical displays	103,089
Police protection	1,033,862
Rent of offices and grounds	109,460
Repairing buildings	73,221
Salaries of clerks	404,567
Salaries of officers	329,095
Secret service	118,660
Souvenir coin expenses	127,286
Services of bands	172,303
Stationery and printing	84,848

The other 68 items for smaller amounts make up the total of 7,127,240 dol. (1,469,534l.).

Principal construction expenditure. The following were the principal items under the head of "construction expenditure";—

Description.	Amount.
	Dollars.
Anthropological Building	87,612
Administration Building	476,307
Agricultural Building	698,163
Art Building	758,628
Art Institute	200,000
Board of architects	134,830
Boiler plant	185,217
Bridges	83,341
Claims and damages	180,180
Colonnade and obelisk	101,495
Choral Building.. .. .	89,272
Colouring and decorating	382,893
Draughtsmen's wages	179,708
Dredging, filling, and excavating	615,144
Decorations	119,135
Electric lights, appliances, and engineering	81,663
Electricity Building	447,681
Electric plant	1,160,773
Elevation of Illinois Central tracks	250,150
Fencing, ticket booths, &c.	92,755
Fire and police houses	78,702
Fisheries Building	238,008
Floating property	92,700
Fountains	140,081
Forestry Building	82,709
Furniture for buildings	118,648
Grounds and buildings office	102,092
Grading and surveying	148,900
Horticultural Building	319,489
Interior docking	273,725
Live-stock Exhibit Building and Sheds	152,568
Landscape gardening	492,273
Machinery Building	1,235,401
Manufactures Building.. .. .	1,802,759
Music Hall, Casino, and Peristyle	314,396
Mines and Mining Building	292,910
Piers and breakwaters	308,020
Power plant	659,322
Runways and cranes, Machinery Hall	121,458
Railway tracks	408,423
Railway terminal station	234,878
Roadways and sidewalks	376,861
Sculpture modelling	380,647
Statues	230,172
Superintending construction	188,548
Shoe and Leather Building	93,244
Transportation Building	554,341
Water and sewerage	927,832
Woman's Building	138,567

Besides the above there were 76 smaller items which made up the whole construction expenditure to 18,322,623 dol. or 3,777,860l.

The whole expenditures to October 31, 1893, both construction and general consolidation, and including in each case cost of buildings erected for special use, have been grouped as follows: maintenance, repairs, and all incidental and other expenses are included :—

Whole expenditure grouped.

Description.	Amount.
	Dollars.
Architecture	398,810
Anthropology	217,839
Art	801,445
Agriculture	740,656
Bridging	84,529
Colouring and decorating	388,284
Concession expenses	128,209
Ceremonies	333,664
Dredging	615,144
Damages	197,147
Dairy	110,770
Decorations	119,135
Donations and charities	27,996
Electrical	1,911,857
Engineering, grading, and surveying	218,229
Fencing	95,631
Fire protection	298,254
Foreign agents	163,898
Finance	601,231
Fisheries	257,466
Forestry	110,534
Furniture for buildings	125,775
Grounds	465,481
Gate expenses	347,352
General expenses	1,294,666
Horticulture and floriculture	456,628
Insurance	182,687
Installation	387,951
Janitors	378,033
Landscape gardening	551,448
Live stock	258,560
Manufactures and liberal arts	1,890,199
Music	600,941
Mines and mining	327,676
Marine service	58,152
Machinery	2,786,635
Medical and surgical	44,983
National agitation	87,808
Police protection	1,301,479
Piers and breakwaters	600,449
Preliminary organisation	90,675
Public comfort	150,404
Reproduction of Convent La Rabida	25,009
Roadways and sidewalks	394,428
Railway transportation	1,247,101
Sculpture	866,172
Stable expenses	110,207
Superintendence and inspection	292,690
Special attractions	125,761
Shoe and leather	111,062
Transportation exhibits	587,232
Viaducts	39,638
World's Congress Auxiliary	264,061
Woman's Building	141,038
Water and sewerage	1,122,770
Total	25,540,538

The Centennial Exhibition at Philadelphia in 1876 covered 60 acres and cost about 1,752,500*l.*, and there were about 32,000

exhibitors. At the Paris Exposition in 1889 there were 60,000 exhibitors, the ground covered 75 acres and the cost was about 2,268,000*l*. At Chicago in 1893 there were 90,000 exhibitors, the Exposition covered 666 acres and the cost was 5,266,090*l*.

Conclusion.

Now that this wonderful Exhibition is over matters outside its actual history suggest themselves, and an eye is turned to see what consequences are likely to follow. As to what the effect will be in a commercial point of view no positive conclusions can yet be formed, nor can any correct estimate be made as to the degree of benefit each country may derive from the participation it has taken. As a rule, foreign countries seem satisfied with what they have done, and to consider their prospects good in respect to an extension of the commercial relations with this country in time to come. Seeds have, no doubt, been sown which may develop and grow, but results are yet prospective; they can only be shown in the future, and perhaps not in the immediate future, and any forecast might be misleading. On this subject, therefore, the remarks made must be regarded only in the light of possibilities, and should be taken as an independent opinion based on ideas which may never be realised. That the effect of the Exposition will spread over a wide surface there seems no reason to question.

With regard to the United States a clearer perception is possible, and the advantages which will be derived can be estimated more definitely than with regard to other countries. The Exposition has made the American people more intimately acquainted with the finest work of the Old World, much of which had never found its way across the Atlantic or been seen on this Continent. It will have given them a wider conception of artistic beauty, and a more intimate knowledge of the means whereby the highest perfection of work is attained. It will have elevated the taste of the country by the profound impression which the work and experience of years and centuries in older lands have grafted in their minds, and given them a higher appreciation of the laws and principles which must govern the evolution of every grand conception. In no branch is beneficial result, perhaps, more certain than in that of architecture; the grand effect produced by the buildings at the World's Fair has attracted universal admiration, and a more correct and classical adaptation of design will probably rule in future. It will have drawn attention to the intimate relation between architecture and landscape in producing harmonious effect, and to the value of sculpture and painting as decorative aids in important works. It can scarcely fail to raise the standard of taste, and lead to a refinement of perception which will discard the error of adapting different styles, and such faults of fancy and invention as may offend the eye.

In the light of practical or technical education the opportunity offered by this gathering together of the finest examples in all branches of handy work from all countries will not be lost sight of, and will aid in the eventual realisation of the highest standard of excellence. It has not only given the people here the advantage of a more intimate knowledge of other lands and their products, but has shown them fresh ground where their vast accumulations may be profitably employed; it has shown them where fresh channels of distribution and trade can be opened; it has placed them in closer communication with foreign countries, and has shown them where best to extend their relations and where best to obtain direct from the source of production the goods they require. It seems already to have stimulated exertions in the direction of securing a larger proportion of foreign trade, and a mission is understood to have already proceeded to Japan for the purpose of increasing commercial relations with that country. The Central and South American Commissioners to the Exposition were lately taken a trip to New Orleans and neighbourhood with a view to fostering relations between Chicago and the Latin American Republics, to give them a better acquaintance with the goods which could be supplied them through that part of the country, and to indicate what products could be taken in return. The Latin American Republics, the West Indies, Canada, and some distant countries such as New South Wales, regarding which or their products comparatively little was known here, have become more familiar with the United States and their methods and will probably reap in proportion the greatest benefit in increased trade. To these the impressions given by the World's Fair, and the energy, wealth and resources of this country will not have been without effect. To the untravelled people of this country the Exposition has been a revelation, and few, whatever business or occupation they may be engaged in, can have visited it without instruction and profit.

The same advantages have been offered to all countries, and those which have made the greatest exertions will in all probability have turned the occasion to the greatest profit. No Exposition has more shown how keen is now competition in every branch of manufacture, and how every country is straining to obtain for its own productions the largest share of custom possible. In every quarter continued efforts are being made to wrest from others the trade they enjoy, and to make their own manufactures known and push their trade. The lesson which the Columbian Exposition has taught will not be lost by those who have taken an active part in it in view of a basis for future operations. Germany, as an instance, has resolved by adding the appointment of a special attaché to the staff of the Consulate at Chicago for the purpose of assisting the merchants and manufacturers of their country in extending their relations with this part of the West, to put to practical use the experiences derived. In these days to rely and rest upon a bygone reputation is to be lost. In the face of ever increasing competition, not only by countries already in the lists, but by others who hitherto have been almost unknown

in the history of trade and are now pressing forward with their productions eager for a share in the world's trade, renewed exertions are necessary if but to retain the ground held, while to advance in the race much more is required. Of the general excellence of British productions and manufactures no doubt exists, but we are closely run by others in those goods which were formerly, if not specialities, yet principal features of our factories and commerce. The question whether Great Britain can continue in the immediate future to retain the forward place held till now must rest on the exertions made. Though the world may recognise in a country the highest standard of manufacturing power, visitors at an Exposition, such as the World's Fair at Chicago, are liable unconsciously to ascribe superiority to the larger and more effective display.

With regard to the city of Chicago, the Exposition is here considered to have been a marvellous success. It differed in one point from similar undertakings in that almost all the funds were derived from one community, the people of Chicago, and also that separate buildings were appropriated to every different department, and that there was a wider range of exhibit. The area of the grounds and buildings far exceeded that at any previous Exhibition, and the cost was double. It entailed great expenditure and labour, and a large sum has been practically lost. It is thought, however, that the money has been well expended, and that the outlay will be repaid by future advantage, which will accrue to the city and to the country in a business and commercial point of view, and especially by benefit in the matter of education. The Exposition may not have been attended by the numbers from across the Atlantic which were expected; probably the estimate was too high, and foreign exhibitors have undoubtedly been disappointed in meeting comparatively so few purchasers in the crowd of attendants, but this must be greatly attributed to tightness of money. A large amount has nevertheless been circulated by visitors, which has found its way into the hands of hotel-keepers, stores, railways, and other means of conveyance, and thousands have been employed at high wages in different lines of work. The name of the city has been brought to the notice of the whole world.

As an outcome of the Exposition, and illustrative of its effect may be mentioned the establishment of a Columbian Museum at Chicago, for which purpose Mr. Marshall Field offered the sum of 200,000*l.*, on condition of another 100,000*l.* being subscribed. The offer was accepted, trustees appointed, other donations followed, two being for 20,000*l.* each, and many of the exhibits at the Exposition have been donated or purchased. It was a favourable moment at the close of the World's Fair for the formation of such an institution, and it is already in possession of many valuable and interesting collections, which will be for the present taken care of in the Art Gallery until the location for the museum is decided. It has started under peculiarly advantageous circumstances, and promises in a short time to be in many

respects one of the finest museums in the world. More than half the exhibits in the Anthropological Building have been secured, and almost every foreign country has contributed most liberally, either relics or collections of value from their sections.

For some time a notion prevailed that the Exposition might be kept open for six months or a year longer, and the question was discussed, but, on account of the cost of maintenance and care of the buildings, besides the unwillingness of exhibitors to run the risk and expense of their exhibits remaining, it was decided to abandon the idea. Regret has universally been felt that the "Court of Honour," the finest architectural combination probably ever produced, should not be retained. True, the buildings were only of temporary construction, though no sense of their ephemeral character obtruded itself on the mind, rather was there a difficulty of realising, when attention was directed to the fact, or close inspection expressly made, that they were not of stone or marble. All except the Art Gallery must come down, and very little, if any, salvage is expected to cover the cost of removal, and to replace the Park in the condition in which it was taken over. Chicago, however, is proud of the Exposition of 1893. It has undeniably been a magnificent success, and, when scarcely a trace remains of where and what it was, it will long live in memory as the grandest Exhibition which has yet taken place.

While these last words are being written a definite arrangement has been made between the Exposition Company and the Park Commissioners, according to which the Company will pay the sum of 40,000*l.*, and turn over the grounds and buildings to the Commissioners as they are, on condition of being released from all obligations for damages to Jackson Park. The Manufactures and Fine Arts Buildings are exempt from the terms of the settlement, as there is some idea that the former may be taken down and re-erected by the city in some other locality, and the Art Gallery will for the present be the home of the Columbian Museum. The Park Commissioners will probably only retain the other buildings so long as to realise on salvage at a favourable moment. The Exposition Company will, therefore, cease to exist on January 1, 1894, and it is expected about 15 per cent. will be available for the shareholders.

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REPORT ON THE
COAL MINES OF WEST VIRGINIA.

*Presented to both Houses of Parliament by Command of Her Majesty,
MARCH, 1894.*

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No. 321.

UNITED STATES.

WASHINGTON.

Sir Julian Pauncefote to the Earl of Rosebery.

My Lord,

Washington, February 6, 1894.

I HAVE the honour to transmit herewith a Report which has been drawn up by Mr. Peel, Second Secretary of this Embassy, on the Coal Mines in West Virginia.

This Report is of special interest and value at the present time, and I have much pleasure in drawing the attention of your Lordship to the industry and ability displayed on its compilation.

I have, &c.

(Signed) JULIAN PAUNCEFOTE.

Mr. Peel to Sir Julian Pauncefote.

Sir,

Washington, February 1, 1894.

The great coal crisis of 1893 and the chances and facilities which it has given to foreign competitors has furnished a subject for a great number of articles which have appeared in the Press, drawing the attention of the public to the fact that it is an error frequently indulged in to suppose that England has now the command of the cheapest coal in the world; on the contrary, so far as the United States are concerned, it is said that we have even to face the prospect of being permanently dislodged from our former supremacy as a coal-producing country.

It has been pointed out that, as the United States have for some years past been producing their coal at a cost not much exceeding half of that of many coal fields at home, a time may
(1890)

come when, with the recurrence of such a disaster as that of 1893, they may be able to compete with our own markets, that some cargoes of their coal have already been landed in England, and that if the same freight could be got for American coal destined for British ports as is obtained for many tons of heavy material which are shipped from England to the United States "our coal markets may some day be flooded with supplies from the fields of Virginia and other districts."

Whatever ground there may be for such statements as these, it is undoubtedly a matter of considerable importance that reports should be furnished from time to time with regard to the various coal-producing districts in the United States showing the output, the total value, the average price per ton, the number of employes, their wages, the rates of transport, and the improvements both by rail and river.

The short leave of absence kindly granted by your Excellency brought me into the Kanawha Valley, which as you are aware is one of the most important coal regions of West Virginia, and, though time prevented me from extending my investigations any further, I have ventured, as a result of the inquiries which I made of owners and managers of mines and from reports with which I have been kindly furnished, to lay before your Excellency the following observations.

I have, &c.

(Signed) ARTHUR PEEL.

Report on the Coal Mines in West Virginia.

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The report furnished by the Department of the Interior states that the year 1892 was one unprecedented in the history of the coal trade of the United States. The production exceeded that of any previous year, the total output of all kinds of coal being 179,329,071 tons, and 10,825,402 tons more than was produced in 1891.

Output of coal in the United States in 1892.

Of this output West Virginia ranks fourth in importance among the coal-producing States of America, being preceded in this respect by Pennsylvania, Illinois, and Ohio.

Output in West Virginia.

The following list is interesting as showing the total product of all kinds of coal in 1892, the value, the average price per ton, the average number of working days, and the number of persons engaged in operating the mines:—

States.	Total Product.	Total Value.	Average Price per Ton.	Average Number of Days Active.	Total Number of Employees.
	Short Tons.	Dollars.	Dol. c.		
Alabama ...	5,529,312	5,788,898	1 5	271	10,075
Arkansas ...	535,558	666,230	1 24	199	1,128
California ...	85,178	209,711	2 46	204	187
Colorado ...	3,510,830	5,685,112	1 62	229	5,747
Georgia... ..	215,498	212,761	0 99	277	467
Illinois ...	17,862,276	16,243,545	0 91	219½	34,585
Indiana... ..	3,345,174	3,620,582	1 8	225	5,436
Indian territory	1,192,721	2,043,479	1 71	211	3,257
Iowa ...	3,918,491	5,175,060	1 32	236	8,170
Kansas ...	3,007,276	3,955,595	1 31½	208½	6,559
Kentucky ...	3,025,313	2,771,238	0 92	217	6,724
Maryland ...	3,419,962	3,053,590	0 89	225	3,886
Michigan ...	77,990	121,314	1 56	195	230
Missouri ...	2,733,449	3,369,559	1 23	230	5,893
Montana ...	564,648	1,330,847	2 36	258	1,158
Nebraska ...	1,500	4,500	3 0	...	...
New Mexico ...	661,330	1,074,501	1 62	223	1,083
North Carolina	6,679	9,599	1 44	160	90
North Dakota...	40,725	39,250	0 96	216	54
Ohio ...	13,562,927	12,722,745	0 94	212	22,576
Oregon ...	34,661	148,546	4 29	120	90
Pennsylvania, bituminous	46,694,676	39,017,164	0 84	223	66,655
Rhode Island...	...	...	...	...	...
Tennessee ...	2,092,064	2,355,441	1 13	240	4,926
Texas ...	245,690	569,333	2 32	208	871
Utah ...	361,013	562,625	1 56	230	646
Virginia ...	675,205	678,429	0 86	192	836
Washington ...	1,213,427	2,763,547	2 28	247	2,564
West Virginia...	3,733,755	7,852,114	0 80	223	14,867
Wyoming ...	2,503,839	3,168,776	1 27	225	3,133
Total ...	126,856,567	125,124,881	0 99	219	212,893
Pennsylvania, anthracite	52,472,504	82,432,000	1 57	198	129,050
Grand total ...	179,329,071	207,566,381	1 16	212	341,943

* None reported.

But although West Virginia ranks only fourth in the output in coal, still when it is considered that she possesses an estimated coal area of 16,000 square miles as against 12,000 square miles in Pennsylvania, and 9,000 square miles in Kentucky, and that of the 54 counties in the State probably not more than four are wholly without coal, that the industry is only in its incipency, and that one-thirteenth of the aggregate total area is contained within her borders, it may be said that she easily outranks all others in the extent and value of her coal beds, which are easily and cheaply (1690)

mined, of the highest grade of excellence, in close proximity to vast deposits of iron ore and limestone, and accessible to the best markets.

Since the year 1879 the amount mined has shown a continuous growth, its rate of increase during the last 5 years being exceptionally rapid. The product in 1892 as the following table will show was 518,090 tons larger than in 1891, and though this increase was little more than one-fifth of the increase in 1891 over 1890, it is still a significant amount and of sufficient importance to show the steady growth of the coal mining industry of this State.

The following table exhibits the annual output of the State since 1873:—

COAL product of West Virginia since 1873.

Years.						Short Tons.
1873	..	..	..	..	..	672,000
1874	..	..	..	..	..	1,120,000
1875	..	..	..	..	..	1,120,000
1876	..	..	..	..	..	896,000
1877	..	..	..	..	..	1,120,000
1878	..	..	..	..	..	1,120,000
1879	..	..	..	..	..	1,400,000
1880	..	..	..	..	..	1,568,000
1881	..	..	..	..	..	1,680,000
1882	..	..	..	..	..	2,240,000
1883	..	..	..	..	..	2,335,833
1884	..	..	..	..	..	3,360,000
1885	..	..	..	..	..	3,369,062
1886	..	..	..	..	..	4,005,796
1887	..	..	..	..	..	4,881,620
1888	..	..	..	..	..	5,498,800
1889	..	..	..	..	..	6,281,880
1890	..	..	..	..	..	7,394,654
1891	..	..	..	..	..	9,220,665
1892	..	..	..	..	..	9,738,755

The districts in which this is carried on lie in two nearly parallel lines, one stretching along the northern border from Mineral county on the east to Marion and Monongalia counties on the west, the other following the course of the New River and Kanawha River, and may be divided into three areas:—

The northern, comprising Wheeling, Fairmont, and Parkersburg districts.

The middle, comprising the New River and Kanawha districts.

The southern, in which are found the Pocahontas, Elk Horn, and Logan districts.

The table below shows the statistics of coal production in West Virginia in 1892 distributed by counties, and the disposition of the output. Of these counties it must be noted that a great development has taken place in the Kanawha field since the inauguration of the deep water improvements of the river by the

United States Government and the completion of the Chesapeake and Ohio Railway. The field stretches from Charleston to the mouth of the Gauley River, a distance of 40 miles, running along the railway systems of the Chesapeake and Ohio and Kanawha and Michigan. It is, however, a general term, and includes all the coal seams opened on the Kanawha River and New River, with their tributaries. At the time of the commencement of the locks and dams there were but two collieries working and shipping coal above Charleston, each shipping by water; but with the completion of the deep water improvements and railways the coals of this field found markets both east and west in increasing tonnage, and have at the present time reached the output as stated in the following table:—

UNITED STATES.

Coal Product of West Virginia in 1892, by Counties.

Counties.	Loaded at Mines for Shipment.	Sold to Local Trade and used by Employés.	Used at Mines for Steam and Heat.	Made into Coke.	Total Product.	Total Value.	Average Price per Ton.	Average Number of Days Active.	Total Number of Employés.
	Short Tons.	Short Tons.	Short Tons.	Short Tons.	Short Tons.	Dollars.	Dol. c.		
Brooke ..	12,681	13,790	50	..	26,521	25,029	0 94	226	51
Fayette ..	1,864,754	27,960	10,995	551,691	2,455,400	2,073,277	0 84	252	4,102
Harrison ..	194,731	12,802	274	14,419	221,726	1,170,871	0 77	148	473
Kanawha ..	1,287,720	27,411	2,490	..	1,317,621	1,213,641	0 92	217	2,677
McDowell ..	1,229,864	28,832	4,928	433,351	1,696,975	1,222,019	0 73	195	2,061
Marion ..	537,152	10,272	13,986	358,294	919,704	682,111	0 74	275	1,114
Marshall ..	103,414	15,000	560	..	118,974	93,573	0 79	199	210
Mason ..	77,432	80,538	1,674	..	159,644	153,237	0 96	215	338
Mercer ..	1,020,496	6,158	4,779	160,519	1,191,952	917,550	0 76	211	1,621
Mineral ..	668,974	11,466	1,962	..	682,402	451,150	0 77	244	600
Monongalia ..	35,000	250	100	13,550	48,900	35,208	0 72	308	72
Ohio ..	41,414	77,588	1,321	..	120,323	119,660	0 99	243	222
Preston ..	66,676	1,228	1,903	28,199	98,006	66,072	0 67	209	170
Putnam ..	84,638	4,024	1,224	..	89,886	99,715	1 11	180	483
Raleigh ..	94,704	1,120	..	..	95,824	85,557	0 89	167	120
Taylor ..	96,626	2,418	112	15,989	115,145	70,049	0 61	282	128
Tucker ..	244,514	802	3,205	111,231	359,752	253,495	0 70	306	525
Small mines ..	..	120,000	..	..	120,000	120,000	1 0	..	..
Total ..	7,560,780	441,159	49,563	1,687,243	9,738,755	7,852,114	0 80	228	14,867

The general character of the country is so regular; it allows the employment of such simple methods of handling and shipping the coal; the mountains, which rise 500 feet to 1,200 feet above the river level, contain so much coal in sight, cropping out in nearly horizontal strata; that there has been no inducement to make any thorough search by boring for coal below the river level. Up to the present time mining operations have been limited to the lands immediately adjoining the river, and to a few tracts within 5 or 10 miles, reached by short lines of railroad specially constructed for their development, so that there has as yet been no practical consideration of what coal-beds may lie at the deeper levels, and Mr. Edwardes, one of the members of the State Legislature, who has written a report on the coals and cokes in West Virginia, says that it is only from the information gained through the many oil wells drilled and being drilled that any accurate information has been obtained of the extensive deposits of coal that lie deep under the surface, "and are now and for many years to come safely locked up in trust for the peoples of this Republic yet unborn."

Character of
the country.

The consequence is that the Kanawha has been for some time a special field for small capitalists, though now that competition has increased and the margin of profit has become less, it has been found necessary to extend operations and work with a larger capital.

The Kanawha coals are classed as splint, gas, steam, cannel, and coking.

Character of
coal.

The splint is used mostly for domestic fuel and high grade steam coal. It is noted for its toughness and its regularity of cleavage. It withstands the handling and exposure of a stock-yard much better than ordinary bituminous coal. It requires, however, more skill and care in mining than the softer coals, as the miner is paid on the basis of the lump coal which passes over the screen. The great and growing demands for fuel not only of Cincinnati and Indianapolis, but particularly of Chicago and the vast North-West, are fast forcing to the front high grade coals that can stand the transportation and bear the cost of long haul carriage, and it is because the Kanawha coal possesses all these qualities, and exceeds most coal of the same description in other districts of the United States in having a greater percentage of fixed carbon and a lesser percentage of ash and sulphur, that it is so much in demand.

Gas coal is a softer coal, and can be mined more cheaply than the splint. It is used almost entirely for gas-making, and, to a limited extent, for steam purposes. According to an analysis that has been made, 1 lb. of coal from this district is found to produce from 4.90 to 6.35 cubic feet of gas.

Steam coal is used for steamboats and for steam purposes at ironworks, &c. It contains more carbon than the ordinary coking coals, and lasts longer.

Cannel coal is used principally by gasworks as an enricher for other coals, but it is of irregular occurrence and limited in area.

Coke is made in West Virginia both in the middle and northern areas, the New River coal, however, furnishing the best and largest output. Beehive ovens of the ordinary pattern or a modified form of the same are the only ones used. Tests of flue ovens have been made, but the experiments have proved failures and have been abandoned, owing in a great measure no doubt to faulty construction and faulty management. The development of the cokefields on the Kanawha and New Rivers is comparatively recent. The first coke ovens were built on New River about 1874, and on the Kanawha about 1880. Since then there has been a growing demand for these cokes which average from 68 to 72 per cent. of fixed carbon, and, being made from a coal that is very pure and quite free from slate partings and sulphur, give an excellent blast furnace fuel. According to the Chicago quotations in the "New York Coal Trade Journal" the average price per ton is rated at about 5 dol.

Thickness of
seams.

The limit of the thickness of workable coal in the mines along the Kanawha is stated to be in seams of 3 to 6 feet, but several seams are worked which average less, and probably 30 inches may be regarded as the minimum value where there are special inducements afforded by the ease of mining or by the superior quality of the coal.

System of
mining.

There is nothing of special novelty in the machinery, appliances, or in the plan of underground work. There are, of course, slight differences in different districts, and the methods are gradually changing, but it may not be altogether without interest to describe roughly the present system such as it is found in most of the mines.

The system almost exclusively adopted is that of room and pillar work.

Long wall work has been tried, but most of the attempts have been failures, and the local prejudice against the method is strong as very few coal seams can depend on natural drainage, so that as soon as the roof settles the mine is in danger of being flooded. The Kanawha mines are generally situated high on the mountains, so that unusual facilities are offered for rear and side openings.

The entries are generally driven 9 to 12 or 15 feet wide, with parallel air courses separated by a pillar of 20 to 40 feet, which is cut through for ventilation at intervals of 75 to 150 feet.

The rooms are opened from the entries with a width of 9 to 15 feet, and driven narrow for 18 to 30 feet, when they are widened to 20, 30, or even 45 feet; the widest rooms are worked with two tracks, the varying width depending on the character of the roof, the hardness of the coal, and the amount of debris for which stowage must be found.

The rooms are usually driven 300 feet long, but vary between 200 to 500 feet. The pillars left between the rooms are usually 12 to 15 feet thick.

In blasting the coal, black powder is used exclusively, and high explosives are seldom resorted to even in rock work, while no attempt has yet been made to experiment with line cartridges or other substitutes for powder.

The miners still use the ordinary coal drill, but many of them, especially in the softer coals, employ the breast augur, and a limited use is made of patent drills. Power drills driven by compressed air have never yet been introduced.

Machine mining has been tried in the northern part of the State to a limited extent, but not under favourable circumstances, and it appears to be the opinion of most of the managers of the mines that when labour is abundant and wages are low there is no gain in economy, though at other times there are marked advantages, as, for instance, in the greater regularity and control of the work.

The bank wagons at most mines follow what is known as the Pittsburg pattern, the cars being made without any timber frame, the planks being simply bolted to heavy iron straps. Whenever it is possible, the rehandling of coal is now generally avoided, and the same waggon loaded by the miner is taken to the final shipping point; but when the tramway is very long the wear and tear of the small cars counterbalance the loss and expense of rehandling. The capacity of the mine cars varies from 800 lbs. to $2\frac{1}{2}$ tons, but cars following the Pittsburg pattern are rarely built to carry more than 1 ton.

In thin seams the loaded cars are pushed by the miners themselves or by special labourers to the room mouth, where the entry is of sufficient height for horses or mules, which are generally preferred, though the horses are cheaper; the price paid for a mule varying from 75 dol. to 125 dol., and the larger mines in the Kanawha district employing from 40 to 50.

No use is made of inside gravity planes, and there are very few mines where there is sufficient grade. No attempt has as yet been made to introduce underground haulage except on the New River. Small locomotives are used at many of the mines for service on outside tramroads, but very few mines are so arranged and ventilated as to allow of their introduction for inside work.

Most of the mines are connected by gravity planes or inclines with their loading works at the railroad or river. Here the coal is passed through screens which differ widely for the different classes of coal, but as at the splint and gas coal mines the miners are paid on the basis of lump coal, the coal is not weighed till it has been screened. Gas coal is dumped over $\frac{1}{2}$ -inch to $\frac{3}{4}$ -inch screens, and the harder splint over screens of $1\frac{1}{4}$ -inches to 2-inches. The coal passing through this coarse screen is again divided into nut and slack by a finer screen of $\frac{1}{2}$ -inch to $\frac{3}{4}$ -inch. The lump coal drops from the screen into the weigh basket, which opens in the centre and drops the coal into the barges or the railroad cars.

In the report furnished to the United States Geological Survey there are some observations with regard to the statement generally made that, as the mines have been worked above water level, firedamp is as yet unknown on the Kanawha. **Firedamp.**

It is true that no serious explosions have ever occurred here;

still gas has in several instances accumulated in quantities sufficient to cause slight explosions, scorching the men who have fired it, and cases have also been reported in which the gas escaping from drill holes in an entry have been fired and have continued burning for some time.

The deep depression of the river bed and of the lateral valleys have doubtless aided the escape of gas and made the present workings safer; but, of course, as mining is continued and the openings are extended further from the outcrop, the probability increases that gas will be found in serious quantities. As yet there are no indications of any amount of firedamp which will not be rendered harmless by even ordinary ventilation, or which will require the substitution of fans for furnaces.

Ventilation.

Till quite recently no general attention has been paid to ventilation on the Kanawha. This has been due to the general absence of firedamp, and to the failure of both owners and miners to realise the importance of the matter. Now that the mines have been extended the need of increased air is felt, and most of the mines are provided with ventilating furnaces. Still, many are working by natural ventilation alone, and where they are so situated as to have openings both on the front and on the rear or side of the mountain very little trouble results, especially when the dip of the coal is considerable.

**Inspection of
mines.**

With regard to the inspection of the mines, Sec. 4 of the Mining Law of West Virginia says that each inspector shall examine the mines of the district at least twice every year, and oftener if called upon by 20 miners engaged in any one mine, and he shall see that all the provisions of the Act are observed and strictly carried out.

Sec. 5 of the Mining Law requires every mine owner to have his mine surveyed twice within every 12 months, and not more than 7 months apart, and deliver to the inspector of the district a map or plan and statement of the progress of the working and extensions, so as to enable the inspector to trace the same on the map or plan so furnished.

In his report, the Mine Inspector for the second district in West Virginia complains that his district is too large to examine in the way contemplated by the Act, extending as it does the entire length of the State, in which 135 mines are in operation. He states that there were 22 fatalities caused by falls of slate, coal, &c., and other causes, for every 2,334,564 tons of coal produced.

Mr. Williams, Mine Inspector in Pennsylvania, states that 39 per cent. of the casualties in his district were caused by falls of roof or coal, due to the carelessness and the haste that the system of working by contract naturally breeds among miners while executing their work. The empty car comes to be filled with coal at regular intervals, the coal must be prepared to fill it without delay, or the miner will miss a trip, which makes his earnings so much less on pay day. A loose dangerous piece of rock may need attention, a prop may be needed to secure a

dangerous patch of roof, but these being matters that require time, and happen frequently when the miner cannot spare it without pecuniary loss, he is thus driven by circumstances and the peculiarity of this work to take risks and jeopardise his life.

According to the official returns there are about 14,900 men **Miners.** employed in the coal mines of West Virginia, of whom nearly 3,000 work in the Kanawha district, the largest mine in this part of the State employing about 600 men. They are mostly Americans, but amongst them are to be found a large number of English, Welsh, Poles, and Hungarians. The English and Welsh miners are preferred by the managers of mines to those of any other nationality, owing to the greater experience, skill, and knowledge they bring with them from being accustomed to work in mines from childhood. The demand for labour varies at different seasons of the year. During the summer months, when less coal is used for domestic purposes and the days are long and therefore not so much is required for making gas, business is in general slack, and many of the miners put up a day's work whenever they can; a great number living at the distance of 1 mile and even 10 miles from the mine have plots of ground from 2 acres to 15 acres, where they cultivate corn, tobacco, beans, &c., and earn a livelihood of about 20 dol. a month. When business is, however, brisk there is a good deal of difficulty experienced in getting sufficient labour, but the supply last year was rather larger than usual, owing to the various strikes that took place, and especially those that occurred in the iron works in the Ohio district.

At the splint and gas coal mines the miners are paid by the **Wages.** month on the basis of lump coal, and the coal is not weighed until it has been screened. Gas coal is dumped, as has been stated above, over $\frac{1}{2}$ -inch to $\frac{3}{8}$ -inch screens, and the harder splint over screens of $1\frac{1}{2}$ inches to 2 inches, deductions, therefore, being made from the earnings of the miners for small coal which falls through the screen, for insufficient weight, and for too much slate mixed with the coal.

A table is appended, which has been taken from the report by Mr. Edwardes on coals and cokes in West Virginia, showing the prevailing prices paid to miners for coal dug, and comparing their wages with those paid to miners in the Pennsylvania and Ohio bituminous and splint coal districts, in which Mr. Edwardes shows the superior economy with which similar coals are mined on the Great Kanawha over the Pennsylvania coal districts. From this table it will be seen that during the past 10 years the price paid the miner in the Kanawha district has uniformly averaged from 7 c. to 14 c. per ton less than in the Pittsburgh and Pennsylvania districts. For the years 1890-91 the prevailing rate in the Kanawha district has been 77 c. per ton ($2\frac{3}{4}$ c. per bushel), as against 84 c. and 98 c. per ton (3 c. and $3\frac{1}{2}$ c. per bushel) paid in the first Pennsylvania district.

Table 1.—SHOWING Prices in Cents to Coal Miners for Coal Mined over a Series of Years in Great Kanawha, New River and Flat Top Coal Districts, and in Pennsylvania and Ohio Semi-Bituminous Coal Districts. (Per Long Ton, 2,240 lbs.)

State.	Name of Seam Worked.	Name of Mine.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	Season or Month.	Screen or Run of Mine.	Kind of Coal.
West Virginia, Great Kanawha District	Pittsburgh, (Putnam Co.)	Raymond City Mines, Marmet Co.	Cents. { 84 70	Cents. { 84 70	Cents. { 84 70	Cents. { 84 70	Cents. { 84 70	Cents. { 84 70	Cents. { 84 70	Cents. { 84 70	Cents. { 84 70	Cents. { 84 70	June November	1½-inch	Hard splint
	Upper Freeport	Crown Hill	{ 91 91	{ 91 91	{ 91 91	{ 91 91	{ 91 91	{ 91 91	{ 91 91	{ 91 91	{ 91 91	{ 91 91	June November	1½-inch	
	Lower Freeport	Coalburgh	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	June November	1½-inch	Hard splint
	Upper Kittanning	Kanawha Mines	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	{ 84 84	June November	1½-inch	Hard splint
	Middle Kittanning	Cedar Grove	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	Year	1½ to 1886, then 1½-in.	Hard, semi-bituminous Soft bituminous
	Lower Kittanning Full Steam	Ansted, Gauley Mt. C. Co.	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	June November	1-inch	Steam coal, not hard
		Great Kanawha Colliery Co.	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	June November	Run of mine	Bituminous gas coal, soft
		Powellton, Mt. Carbon Co., Limited.	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	Summer Winter	Run of mine	Bituminous gas and coking
		Campbell's Creek	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	Run of mine	Bituminous gas and coking, soft
		Keystone, Stevens Coal Co.	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	Run of mine	Bituminous gas, soft
	Upper Bench or Middle	Keystone, Stevens Coal Co.	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	1½-inch	Semi-bituminous, hard
	Clarion	Eagle, Wyant C. and C. Co.	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	Average	Run of mine	Bituminous steam and coking, soft
Pennsylvania and Ohio Semi-Bituminous Coal Districts	Lower Kittanning Full Steam	Ansted, Gauley Mt. C. Co.	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	June November	1-inch	Steam coal, not hard
		Great Kanawha Colliery Co.	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	June November	Run of mine	Bituminous gas coal, soft
		Powellton, Mt. Carbon Co., Limited.	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	Summer Winter	Run of mine	Bituminous gas and coking
		Campbell's Creek	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	Run of mine	Bituminous gas and coking, soft
		Keystone, Stevens Coal Co.	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	Run of mine	Bituminous gas, soft
	Upper Bench or Middle	Keystone, Stevens Coal Co.	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	1½-inch	Semi-bituminous, hard
		Eagle, Wyant C. and C. Co.	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	Average	Run of mine	Bituminous steam and coking, soft
		Ansted, Gauley Mt. C. Co.	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	June November	1-inch	Steam coal, not hard
		Great Kanawha Colliery Co.	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	June November	Run of mine	Bituminous gas coal, soft
		Powellton, Mt. Carbon Co., Limited.	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	{ ... 40	Summer Winter	Run of mine	Bituminous gas and coking
	Clarion	Campbell's Creek	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	Run of mine	Bituminous gas and coking, soft
		Keystone, Stevens Coal Co.	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	Run of mine	Bituminous gas, soft
		Keystone, Stevens Coal Co.	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	{ ... 84	June November	1½-inch	Semi-bituminous, hard
		Eagle, Wyant C. and C. Co.	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	{ 49	Average	Run of mine	Bituminous steam and coking, soft
		Ansted, Gauley Mt. C. Co.	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	{ ... 91	June November	1-inch	Steam coal, not hard

Table 1.—Showing Prices paid in Cents to Coal Miners for Coal Mined over a Series of Years in Great Kanawha, New River and Flat Top Coal Districts, and in Pennsylvania and Ohio Semi-Bituminous Coal Districts. (Per Long Ton, 2,240 lbs.)—continued.

State.	Name of Seam Worked.	Name of Mine.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	Season or Month.	Screen or Run of Mine.	Kind of Coal.
Ohio	Pittsburgh	R. E. Mines, average	Cents. 105, 91	Cents. 91	Cents. 77, 70	Cents. 67	Cents. 68	Cents. 76½	Cents. 76½	Cents. 73	Cents. 79, 98	Cents. 79, 98	Average ...	...	Semi-bituminous
		River Mines, average	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Average ...	...	Semi-bituminous
		Fourth Pool, Monon.	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	...	...	Semi-bituminous
			{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Average ...	...	Semi-bituminous
Penna.	Upper Freeport ...	Hocking County	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Summer ...	1½ inch	Semi-bituminous
			{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Winter ...	1½ inch	Semi-bituminous
	Middle Kittanning	Perry and Starkes Counties	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Summer ...	1½ inch	Semi-bituminous
			{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Winter ...	1½ inch	Semi-bituminous
	No. XII. Measures	Mahoning County	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Summer ...	1½ inch	{ Black split or semi-bituminous
		Briar Hill Block	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Winter ...	1½ inch	{ Black split or semi-bituminous
	Pittsburgh	Athens and Belmont Counties	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Summer ...	1½ inch	Semi-bituminous
			{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	{ ...	Winter ...	1½ inch	Semi-bituminous

In comparison with the similar coals of Ohio, the average price paid to miners does not show so great a variation. The average price per ton paid in the Mahoning county collieries, where the celebrated Briar Hill splint coals are mined in shaft workings, has been 72 c. per ton for 1890, while the price paid during that year in Kanawha was 73 c. per ton.

Taking the general average of price paid the miner, it will be seen that the producer in the Pittsburg district shipping either by rail or by water is at the disadvantage of 7 c. to 14 c. per ton, in comparison with the producer in the several Ohio districts, the price there paid the miner runs about with or slightly in favour of the Kanawha producer.

As far as the cost of production goes, Mr. Edwardes says that the producer of hard splint semi-bituminous coal in the Great Kanawha district mines his coal cheaper than do his competitors in either Pennsylvania or Ohio, while the mine labourer is fully compensated by the lower rents and cost of living in West Virginia, as compared with the Pennsylvania and Ohio coal regions. The best miners produce 100 bushels of coal a-day, the pay rolls of the miner in the district showing wages varying from 40 dol. to 70 dol. per month.

The report issued by the United States Geological Survey states that in West Virginia the price per ton at the pit's mouth ranges from 61 c. in Taylor county to 1 dol. 11 c. in Putnam county, the general average for the State being 81 c.

The following comparative tables, taken from the "New York Journal" reports, give the market ratings for bituminous coal over a series of years at Chicago from the Kanawha district, as well as the prices for the same class of coal obtained from the States of Ohio and Pennsylvania; and, secondly, the price per ton for the cokes of West Virginia and Pennsylvania.

Table I.—AVERAGE Prices per Ton Great Kanawha and other Coals in Chicago Market over a series of Years from New York Coal Trade Journal Reports.

Locality of Production.	Nov. 2, 1887.	Nov. 7, 1888.	Nov. 5, 1889.	Nov. 6, 1890.	Nov. 4, 1891.	Average.	Remarks.
	Dol. c.	Dol. c.	Dol. c.	Dol. c.	Dol. c.	Dol. c.	
Kanawha district—							
Black Band Mine	4 50	4 25	4 0	...	...	4 25	Splint coals.
Winifrede ...	3 50	3 50	3 50	3 60	3 75	3 57	
Raymond ...	4 0	3 75	3 50	3 60	...	3 71	
Plymouth ...	...	3 65	3 50	3 60	...	3 58	
Belmont ...	...	...	3 50	...	...	3 50	
Pittsburgh	3 60	3 35	3 20	3 40	3 40	3 38	Splint and bituminous coals.
Youghiogheny ...	3 60	3 45	3 30	3 40	3 45	3 45	
Hocking Valley ...	3 40	3 25	3 10	3 30	3 10	3 23	
Shawnee ...	3 30	3 25	3 10	3 30	3 10	3 21	
Baltimore and Ohio	3 30	3 25	3 10	...	...	3 21	
Sandy Creek ...	3 30	3 25	3 10	3 30	3 10	3 21	
Jackson Hill, Ohio	3 45	3 30	3 35	3 45	3 35	3 38	
Erie...	4 50	4 25	4 25	4 25	4 25	4 30	
Briar Hill ...	4 50	4 15	4 25	4 25	4 25	4 25	
Kanawha Cannel...	4 75	4 50	4 50	4 50	...	4 56	Cannel coal.
Buckeye Cannel ...	...	6 0	5 0	5 0	5 25	5 31	
Brush Creek Cannel ...	4 75	4 0	4 25	4 25	...	4 44	

Price of coal
at the pit's
mouth.

At Chicago.

Table II.—AVERAGE Price per Ton Kanawha, New River, Flat
" Top Cokes, Chicago, New York Coal Trade Journal
Reports.

Locality of Production.	Nov. 2, 1887.	Nov. 7, 1888.	Nov. 5, 1889.	Nov. 5, 1890.	Nov. 4, 1891.	Average.	Remarks.
	Dol. c.	Dol. c.	Dol. c.	Dol. c.	Dol. c.	Dol. c.	
New River... ..	4 25	5 76	...	...	...	5 0	} W. Va.
Flat Top, Pocahontas Mine ..	5 75	...	...	...	...	...	
Connellsville ...	5 60	5 25	5 55	3 90	5 0	4 95	} Penna.
Wolston ...	4 40	4 25	4 55	5 20	5 0	4 68	
Blossburgh ...	...	...	5 80	...	...	...	

The miners live nearly always in houses belonging to the owners, for which they pay a rental of 5 dol. a-month for a four-roomed house, and 4 dol. for one with three rooms. They are built of wood, and to an English eye present a somewhat miserable appearance. A great many have plots of ground attached to them, but undoubtedly there is great room for improvement, and much is being done and will be done in the future, as the owners of mines are fully alive to the advantages which tenements affording greater comfort and more healthy conditions provide in the way of getting a better class of workman, and offering greater inducements for permanent residence.

Rent of
houses.

The miners buy their provisions, clothes, and tools at the stores of their employers, the prices of which are somewhat in excess of those charged elsewhere for similar goods, but there is no doubt that with the revision of the tariff a considerable reduction may be expected.

The following list is appended, which is furnished by one of the stores, and is interesting as showing the prices paid for some of the ordinary necessities of life, and enabling a comparison to be made with the prices of similar goods sold in England.

Cost of
provisions,
clothes, and
tools.

CLOTHES.

Description.	Prices.	
	From—	To—
	Dol. c.	Dol. c.
Shoes	1 0	4 50
Children's shoes	0 40	1 50
Stockings	0 10	0 50
Shirts	0 50	2 50
Flannels	0 22	0 60
Calico	0 6	0 8½
Ginghams	0 7	0 10
Buttons	0 3	0 20
Collars	0 10	0 25
Kerchiefs	0 5	0 90
Ribbons	0 5	0 30
Suits of clothes	4 50	22 00
Overcoats	6 50	18 00
Cotton trousers	1 0	1 50
Woollen trousers	1 75	5 00
Blankets	1 50	3 00
Jackets	0 65	1 90

PROVISIONS.

Description.		Prices.
		Dol. c.
Flour	Per barrel of 196 lbs. ..	5 00
Smoked meat	Per lb. ..	0 13
Salt .. .. .	.. ..	0 13
Ham .. .. .	.. ..	0 14
Ground sugar .. .. .	.. ..	0 7
Brown " .. .. .	.. ..	0 6½
Tea .. .. .	.. ..	0 60
Cheese .. .. .	.. ..	0 16
Butter .. .. .	.. ..	0 25
Potatoes	Per bushel ..	1 00
Apples .. .. .	.. ..	1 40
Beans .. .. .	.. ..	0 5
Corn meal .. .. .	.. ..	1 00
Salt fish	Each ..	0 10
Canned beef	Per can ..	0 20

MINING TOOLS.

Description.	Prices.	
	From—	To—
	Dol. c.	Dol. c.
Coal picks	0 50	0 60
Shovels	0 90	1 00
Augur	2 50	..
Sledge	1 25	..
Wedge	0 50	..
Tamping bar	0 50	..
Oil cans	0 25	..

The Great Kanawha River, flowing into the Ohio at Point Pleasant, 262 miles below Pittsburg, and 205 miles above Cincinnati, opens to the shippers of coal by water the entire inland waterway of the Continent for all Ohio and Mississippi ports, affording over 16,000 miles of inland water navigation.

A great deal has been done with regard to the improvement of the navigation of the river, which owing to shoals of gravel, coarse sand, and loose rock has been considerably obstructed, and in summer almost suspended.

After the war the State of West Virginia created the Kanawha River Board to carry on improvements, but this Board was dissolved by Act of the Legislature in 1883, and the improvement of the river turned over wholly to the United States.

With the completion of the system of locks and dams now being constructed, deep water navigation will be assured so as to enable the loaded coal boats and barges to be taken away from the mines throughout every month in the year, and according to the records of the United States Engineering Department, this will enable coal to be shipped 330 days out of the 365 days. Seven locks and dams are either finished or under construction; but three more are required to secure the final accomplishment of this great enterprise, and recent action by Congress provides some 2,000,000 dol. for the immediate completion of the system, the result of which will be that moderate prices for coal will be secured throughout the year at Cincinnati, Louisville, and other markets.

The coal barges, considering their capacity and service, are cheap carriers. They cost from 800 dol. to 1,200 dol. and last about 10 years. The barges are generally about 130 feet long, 25 feet wide, and $7\frac{1}{2}$ feet deep. A barge carries from 400 to 560 tons, 480 tons being a fair average. On the Kanawha a tow-boat will take from 4 to 14 loaded barges, but on the Ohio they take from 13 to 34 loaded barges, that is about 15,000 tons.

The general rate at present of towing coal from Charleston to Cincinnati, a distance of 263 miles, is 1 c. per bushel or 25 c. per ton. Owners who hire barges pay $\frac{1}{2}$ c. per bushel barge rent, making the cost to Cincinnati for those who hire both barges and towing $1\frac{1}{2}$ c. per bushel, or $37\frac{1}{2}$ c. per ton or $\frac{1}{4}$ c. per ton per mile. This includes the return of the empty barge to the mine. For longer distances, or to points on the Ohio and Mississippi below Cincinnati, the rates per mile are much less. The usual rates from Cincinnati to the mouth of the Kentucky River, Louisville, and points between, amount to $10\frac{1}{2}$ c. per ton, making the cost from Charleston to Louisville, a distance of 394 miles, including towing and rent and return of barges, 48 c. per ton. The above rates, it will be noticed, are both for comparatively short distances. A considerable quantity of the Great Kanawha coal is towed to different points on the Lower Mississippi as far down as New Orleans in barges which are larger and more cheaply built, being about 170 by 27 feet and from $7\frac{1}{2}$ to $8\frac{1}{2}$ feet draught, and carrying

from 800 to 1,000 tons, and which are frequently sold in the markets with the coal in them. The rate for these long distances is exceedingly low. To New Orleans from Charleston the distance is 1,776 miles, and the rate paid for hire of both barge and towing is 1 dol. 25 c. per ton or $\frac{1}{14}$ c. per ton per mile.

Mr. Edwards in his report says that the rates to the three principal cities, Cincinnati, Louisville, and New Orleans, are the regular rates that have prevailed on the river now for at least 3 years; they may in fact fairly be called the highest rates, as they are never exceeded, and there is a good deal of towing done at considerably lower figures.

As the river is improved and the business increases, the tendency is all the time to lower the rates.

One of the largest companies on the river has been getting its coal towed to Cincinnati and Louisville by regular contract for the past 2 years, at rates at least 20 per cent. below those named above.

The rates given apply, as has been stated above, to the owners of mines who hire both barges and towing; for those who have their own barges and do their own towing the transportation is, of course, much less than the rates.

The report issued by the Department of the Interior states that the shipment of coal on the Kanawha River, which for the year ending 1881 was 385,148 tons, has been increasing steadily, and in 1891 the river shipment was 1,030,454 tons, and there are now about 21 tow-boats and about 900 barges engaged in the coal trade on the river.

With the improvement of the locks and dams, and the removal of obstructions in the way of dredging, a considerable increase of business may be expected, as the mouth of the great Kanawha being so much nearer Cincinnati and the lower Ohio than that of the Monongahela, the Kanawha shippers will have a manifest advantage when those improvements are completed, which may be expected in 1896, Congress having in 1892 authorised contracts to be made for the whole of the remaining work; moreover, it is evident that the present output of coal from this part of the valley is but a small part of what it will become as the coal and coke business is being increased and new mines opened all the time.

The principal railroads which traverse West Virginia, and on which depends the transport of coal from this State to the seaboard, are the Baltimore and Ohio, the Chesapeake and Ohio, and the Norfolk and Western, and they are at present eagerly competing with one another in opening to commerce and future development the mineral wealth of the districts through which they run.

The Baltimore and Ohio traverses the northern area, a branch of which, the West Virginian and Pittsburg railroad, is being built to the Gauley River and passes through the valley of the Elk River.

The Chesapeake and Ohio runs through the middle area of

Rates of
transport
by land.

the State of the Great Kanawha and New River districts, a branch of which, the Kanawha and Michigan, has just been completed, giving an outlet to the great lakes and opening connection by rail to Cincinnati and Chicago.

The Norfolk and Western railroad passes through the southern area and conveys to the seaboard and eastern markets the coal from the Flat Top and Pocahontas Regions (McDowell and Mercer counties). The extension of the railroad from Bluefield, Virginia, to Kenova, West Virginia, was completed during 1892, giving the Pocahontas coal and coke an outlet to Ohio River boats and railroad connection to Chicago.

A considerable increase in the production of the coal from this region may be looked for in the future, as it is undoubtedly one of the best coals mined in America for the generation of steam, its superiority being shown by the extremely small quantity of ash and sulphur and very large percentage of carbon and volatile combustible matter. In 1882 the output from this region was only 4,735 tons; it now amounts to over 3,000,000 tons.

The Cramp Shipbuilding Company of Philadelphia have used it exclusively on all Government cruisers which they have built in past years. In August, 1889, a general order was issued by the Secretary of the Navy to the Commandants of Navy Yards directing them to make use of Pocahontas coal on all trial trips of cruisers, the present contract being 3 dol. 15 c. per ton, but if it were made anew it would be considerably less.

It should be noted that last year the triple screw unarmoured cruiser "Columbia" made on her trial trip an average of 22.81 knots an hour for the entire distance of 84 knots, and between two buoys 7.70 knots apart she made a speed of 25.31 knots.

The White Star, the Cunard, and other lines have also been using this coal on their east bound passage, and in connection with this fact it is of interest to note that the Cunard steamer, "The Campania," burnt it when she made the fastest time on record up till then from Sandy Hook to Queenstown in 5 days 14 hours and 55 minutes, a record which was afterwards beaten by the "Lucania," also using Pocahontas coal, in 5 days 12 hours and 7 minutes. This merely shows of course that this coal is of excellent steaming quality, for the great power of the engines of both these steamers would have enabled them to attain the same rate of speed with any other coal of first quality; in fact, the Cunard line are going this year to try other coals for comparative purposes. The following certificate furnished by the agents of the Pocahontas coal shows the results arrived at by Mr. J. Pattinson of the Laboratory and Assay Office, Newcastle-on-Tyne, in analysing a sample of the above-mentioned coal.

(Copy.)

*Laboratory and Assay Office,
75, The Side, Newcastle-on-Tyne,
January 14, 1889.*

I hereby certify that I have analysed the undermentioned sample of steam coal, and that I find the following results:—

SAMPLE marked "Pocahontas Flat Top, Semi-bituminous Steam Coal, from Norfolk, Va., U.S.A."

	Per cent.
Carbon	86.51
Hydrogen	4.44
Oxygen	4.95
Nitrogen	0.66
Sulphur	0.61
Ash	1.54
Water	1.29
Total	100.00

Calorific power:—Pounds of water evaporated
from 212° Fahr., by 1 lb. of the coal as
determined in Thomson's Calorimeter .. 15.4 lbs.

This coal is of high calorific power, being in this respect equal to the best Welsh steam coal, and is excellent coal for steam-raising purposes.

(Signed) JOHN PATTINSON, F.I.C., F.C.S.

The nominal standard rates charged on the freight of coal to the seaboard by the above companies run from 2 dol. to 3 dol. per ton of 2,240 lbs., but the rates paid by the mines are a good deal within these limits. The Chesapeake and Ohio Railway is in the habit of buying the coal produced at the mines, and acts practically as the middlemen between the coal operators and the consumer, the freights charged being represented by the difference between the amount paid the mine owners by the railroad and the amount received by the railroad company from the consumers. This difference averages about 1 dol. 20 c., and the delivery price on the seaboard at Newport News would, therefore, be about 2 dol. 30 c. per ton.

On the Norfolk and Western Railroad it seems that a common agency has been established for the selling of the coal, and this agency has taken the produce of the mines, arranging with the railroad company for the furnishing of the necessary cars. Owing to this system, therefore, the question of rates to the seaboard is not one of general concern to the producer but of private contract between the railroad company and the selling agency.

Export of
coal from the
United States.

The following statement published by the Statistical Bureau gives the quantity and value of the coal exported abroad, both anthracite and bituminous, for the year ending December 31, 1893:—

RETURN showing the Quantity and Value of Coal Exported and Countries of Destination during the Years 1893-92.

Countries to which Exported.	Quantities.				Values.			
	Month ending December 31.		Twelve Months ending December 31.		Month ending December 31.		Twelve Months ending December 31.	
	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.
	Tons.	Tons.	Tons.	Tons.	Dollars.	Dollars.	Dollars.	Dollars.
United Kingdom	10,535	7,678	69,043	82,159	32,366	24,092	250,561	295,425
Germany	4,896	5,095	43,943	41,957	15,396	15,504	186,652	129,183
France	3,150	3,175	24,309	23,708	9,929	9,902	77,919	89,982
Other countries in Europe	4,525	2,213	26,829	27,206	19,317	6,883	99,496	103,449
British North American Possessions	163,429	62,836	2,732,579	1,636,765	511,866	190,028	9,287,269	5,360,041
Mexico	12,978	22,195	175,155	122,448	54,830	101,555	852,211	560,543
Central American States and British Honduras	265	273	5,368	8,328	2,363	1,351	23,041	37,913
Cuba	66,232	35,334	365,668	350,833	173,993	99,729	1,014,101	983,163
Puerto Rico	601	10	16,686	18,331	1,657	60	45,249	50,788
Santo Domingo	1,267	93	4,737	850	4,685	479	16,443	4,261
Other West Indies and Bermuda	12,348	10,274	101,012	124,316	35,146	27,242	233,121	338,760
Brazil	748	748	6,736	10,080	2,198	2,198	30,607	125,932
Colombia	4,356	7,528	22,911	34,755	15,860	23,664	70,198	112,193
Other countries in South America	668	1,092	10,763	6,225	2,004	6,263	41,675	30,415
Asia and Oceania	116	30	1,346	1,272	539	244	8,799	7,840
Other countries	99	31	1,803	492	430	186	13,466	2,294
Total	286,213	147,857	3,658,873	2,497,325	887,579	507,132	12,250,808	8,732,192

WASHINGTON.

From this it appears that there was an increase last year in the export of coal over that of 1892 by about 1,160,000 tons, the countries receiving the largest amount of coal exported from the United States being Canada, Cuba, and Mexico.

Concluding
remarks.

About 70,000 tons of coal are stated, according to this table, to have been exported to Great Britain and Ireland. It must be observed, however, that a great deal of this coal is used as fuel on board vessels which come from the United States and known as "bunker coal," though it is estimated as an export in foreign ports. As a matter of fact very few shipments of any importance have been made from Norfolk to England, or from the mines along the Chesapeake and Ohio Railroad, and Messrs. Castner and Curran, the agents for the Pocahontas coal, state that it is impossible for coal from the United States to compete in price with that from Cardiff. There would not appear, therefore, at present to be any danger of our markets "being flooded," as has been rumoured, "with supplies from West Virginia and other districts," still the following facts cannot be ignored:—On the one hand, the almost unlimited resources of the coalfields of the United States, the excellence of the quality of the coal, the possibilities of greater economy in the system of mining and greater reductions in the cost of freight; on the other hand, the immense amount of coal consumed within the United Kingdom, the recent increase in the average of value at the pit's mouth, the great losses suffered during the coal crisis of last year, when the reduction of the output was not more than a twelfth part of the total annual output of the country. These are considerations which tend possibly in the direction of the establishment of trade relations of such a nature abroad as may result in a great development of the export of coal from the United States.

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REPORT ON THE
SPICE AND OTHER CULTIVATION OF ZANZIBAR
AND PEMBA ISLANDS.

*Issued during the Recess and Presented to both Houses of Parliament
by Command of Her Majesty.*

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ZANZIBAR.

ZANZIBAR.

Sir G. Portal to the Earl of Rosebery.

My Lord,

Zanzibar, October 2, 1892.

I HAVE the honour to forward to your Lordship herewith copy of a Report on the Agricultural Condition and Prospects of this Island, which has been drawn up by Mr. Fitzgerald, a Specialist on Tropical Agriculture, who is now in the employment of the Imperial British East Africa Company.

This Report is of especial value at a time when we are considering the best means for the development of this Protectorate; and Mr. Fitzgerald's remarks as to the possibility of introducing new forms of cultivation, and as to the expediency of encouraging the growth of other products besides cloves, are worthy of the careful attention of all those who are interested in the future of this island.

I have, &c.

(Signed) G. H. PORTAL.

Report on the Spice and other Cultivation of Zanzibar and Pemba Islands.

ABSTRACT of Contents.

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Preliminary remarks.

In submitting the following notes on the spice and other cultivation of Zanzibar and Pemba Islands, I would first beg to acknowledge with sincere gratitude the very cordial assistance afforded me throughout my visit by His Highness the Sultan's Government, and I am especially indebted to Sir Gerald Portal, Her Majesty's Diplomatic Agent and Consul-General, and General Lloyd W. Mathews, C.M.G., head of the Government, whose ready help and warm interest have mainly conduced to make my mission successful.

My first instructions were more particularly to study the position and prospects of the spice industry, but in accordance with later special advices, this report will take up the question of the present position of native cultivation and agriculture; but this naturally entails a more comprehensive and exhaustive inquiry, and I here gratefully acknowledge my obligation for much valuable information which the brief nature of my visit naturally compelled me to obtain from others; and I have also derived much assistance from the two following works which were courteously placed at my disposal:—

“Cholera Epidemics of East Africa,” by James Christie,

A.M., M.D., containing an excellent chapter on the "Meteorology and Climatology of Zanzibar."

"Notes on the Meteorology of Zanzibar," by John Robb, M.D., F.M.S.

The Island of Zanzibar.

But brief reference need be made to the geographical position Situation of the island, lying well within the tropics between latitude 5 degrees and 6 degrees south of the equator.

Stress may be laid on the very advantageous position it Commanding occupies, adjacent to the mainland, from which it is only separated position. by 25 miles to 30 miles, and this proximity has undoubtedly been the chief factor in giving it its important position in East African trade and affairs.

The island is of coral formation on a substratum of sandstone Formation. rock, and the characteristics of the island are so unusual as to merit a further reference.

"The formation of the island is coralline, erected on a bed of stratified sandstone. . . . The madrepor structure is evidently based upon the summits of an abrupt and sharp rising submarine range which, of course, must have been under the ocean level at some remote period. By the action of the gradually subsiding waters a coralline conglomerate has been formed. On the southern and eastern parts of the island the deposit is more scanty, merely filling up the interstices of the coral rag, leaving exposed the bare summits and making travelling on foot exceedingly difficult. Where sufficient deposits have been left the soil is fertile and the crops early, the porous understructure carrying off superfluous rains, but still retaining moisture and heat, Zanzibar, like all other madrepor islands, grows towards the leeward, and on that side the most fertilising deposits take place. Thus the barest and most infertile parts of the island are those exposed during the greater length of time to the influence of the long continuous south-west monsoon; and the most fertile are those sheltered from the violence of the south-west and exposed to the north-east. . . . With a superstructure of this kind based upon ancient sandstone formations it is quite evident that the immense annual rainfall cannot be drained off superficially to the sea by the swollen stream beds, but that a very large quantity must percolate through the superficial sandy deposit, and then through the reticulated porous coralline structure, collecting . . . in the hollows of the stratified sand-rock." (James Christie.)

In shape, the island is irregular, its greatest breadth varying Extent and from 20 miles to 27 miles, whilst its extreme length exceeds 50 area. miles. A thorough survey of the island has not been carried out, but one estimate gives its total area at 400,000 acres.

Zanzibar differs materially from other sub-tropical islands; Appearance. it possesses no mountain range; the low hilly ridge which takes (1431)

its place, traversing the island in its entire length and almost through its centre, has by measurement been proved not to exceed a height of 440 feet.

Another remarkable feature is the very large extent of land unfit for cultivation, and which, on the authority of Père Sacleux, who possesses a very intimate and thorough knowledge of the island, of which also he has drawn up a map on scale, may be stated to cover the larger half of the island.

Indeed, Zanzibar may be divided into two portions:—the fertile and the barren.

To take the latter first, this extends over the coast lands of the eastern side, and nearly all the southern part of the island, and consists of an universal outcrop of sharp and jagged coral rock; but even here the land is everywhere covered with low bush vegetation and grass.

One explanation given for this sterile appearance is the fact, that these portions of the island are exposed during five months of the year to the full violence of the south-west monsoon. Should this prove to be the case, it would certainly become a question of much importance whether, by a system of judicious belts formed of quick-growing trees the force of the monsoon could not be neutralised, and a certain portion of this barren area reclaimed for cultivation; and, whilst on the subject, and bearing in mind the destructive hurricane of 1872, the following extract will interest:—

“The plantations in Sumatra are belted with double rows of *Casuarina* and *Cerbera Manghas*. Similar precautions in Zanzibar and Réunion would probably have mitigated the harm recently created by hurricanes among their clove gardens.”—*Spon's Encyclopædia*.”

It is in this portion of the island that the Wahadinu people (the original inhabitants) reside.

The fertile area covers the whole of the western and northern side, and also the eastern face of the central hilly ridge; here and there occur scattered small barren areas, called “wanda” or “wangwa.”

Until the accuracy of the earlier and apparently imperfect records giving the total annual rainfall at from 85 inches to 167 inches is established, I prefer to accept the result of the five years' careful meteorological observations taken daily by Dr. John Robb on Ras Shangani, the point of land in the middle of the west coast, and on which the town of Zanzibar is situated. The measurements extend from 1874 to 1878, and give a total average fall of 61·01 inches. As will be seen from the table annexed, the fall is most evenly distributed, Zanzibar feeling the influence of both the south-west and north-east monsoon.

Dr. Robb is inclined to attribute the decrease of rainfall—admitting the greater fall as accurate—to the great destruction of trees on the island in the cyclone of 1872.

But this connection of trees and rainfall is a much disputed point; and, personally, I wholly share the opinion quoted below:—

The Wahadinu.

The fertile area.

Rainfall.

"Forest is plentiful because rain is plentiful, but the converse of the proposition is not true. Plentiful rain will not follow abundant forest. Over a large portion of Ceylon, and much larger portions of India, natural forest is scarce or absent, because of the paucity of rain. To produce forest artificially in such districts is difficult, but not impossible. Success will secure many beneficial consequences; amongst the rest, economy of moisture by reducing floods and evaporation; but we are utterly sceptical as to any appreciable increase of the deposit of rain from the atmosphere by any process of afforestation which can be carried out."—"Forest and Rainfall," "Tropical Agriculturist," July 1891.)

RAINFALL—Monthly Results for Five Years, 1874–78, by
John Robb, M.D., P.M.S.

Months.	Amount.	Greatest Fall.	Number of Days.	Prevailing Winds and Remarks.
	Inches.	Inches.		
January	2·33	2·03	7	N.E.; E., calms, S.
February.. ..	3·00	2·70	8	N.E.; E. in afternoons
March	5·92	2·47	12	N.; N.E.; variable S.
April	14·84	3·74	17	Southerly in W. and E.
May	6·95	3·77	12	W.S.W., S.S.E.; S.
June	2·09	1·63	6	S.W. into S.S.E.; E.
July	2·32	1·95	6	W.S.W.; S., S.S.E.; N.
August	2·49	3·22	8	W.; S, E.; variable
September ..	1·86	1·22	9	W.; E.; S.; calms; northerly.
October	3·75	2·52	9	S.; E.; N.; calms, variable
November ..	7·39	4·63	14	S.E.; E.; N.; calms, variable.
December ..	8·06	4·74	13	N.E.; N.; steady calm mornings.
Average for year	61·00	4·74	121	

The question of temperature as bearing on cultivation being as important as rainfall, all available information will be given. Temperature.

Dr. Robb's observations are as follows:—

"The mean temperature of five years is 80° 3', and the average yearly range from highest maximum to lowest minimum is 17° 3'."

This is confirmed by a valuable record of Sir John Kirk, G.C.M.G., the late Consul-General for the year 1878, "taken in the open and shaded corridors of the residency, unaffected by sun and sky radiation," and given in the "Bulletin of the Royal Gardens, Kew," for 1890, p. 216.

		Degrees.
Highest reading of the year (February)	88·3	
Lowest " " (July)	72·0	
Extreme range	16·3	
(1431)		A 4

ZANZIBAR.

The following comparison of Temperature from "Haldane's Sub-Tropical Cultivation and Climates," will be interesting and also suggestive:—

Station.	Latitude.	Year.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Kingston, Jamaica	18° 1' N.	Deg. 75.4	Deg. 75.7	Deg. 75.2	Deg. 77.5	Deg. 77.7	Deg. 80.0	Deg. 81.5	Deg. 81.4	Deg. 81.5	Deg. 79.2	Deg. 77.4	Deg. 77.2
Zanzibar	5° 48' S.	Deg. 82.5	Deg. 82.9	Deg. 83.2	Deg. 81.5	Deg. 80.0	Deg. 78.6	Deg. 77.2	Deg. 77.4	Deg. 77.1	Deg. 79.4	Deg. 80.9	Deg. 82.2
Bua, Fiji	16° 38' S.	Deg. 81.2	Deg. 80.5	Deg. 79.2	Deg. 79.9	Deg. 79.5	Deg. 77.1	Deg. 76.5	Deg. 77.9	Deg. 79.7	Deg. 79.9	Deg. 81.1	Deg. 80.3

In order to convey as clear a conception as lies within my power of the present position of agriculture in Zanzibar, I deem it best to divide my report as follows:—

No. 1. Enumeration of the chief products cultivated, with a subsequent full reference to each;

No. 2. A description of chief characteristics of soil and cultivation of the portions of the island traversed by me;

No. 3. Summary and suggestions on possible development.

No. 1.—PRODUCTS Cultivated, Given in Order of Importance.

Clove, cocoanut, areca nut, mango, jack, cotton wood tree, Trees. papaw, foreign and native fruit trees, and coffee.

Sugar cane, bananas, rice, cassava (two varieties), Indian corn, beans and peas (varieties), arrowroot, pine-apples, capsicums, and ground nuts.

Sesame and "mtono."

Oil plants.

Sweet potatoes, pumpkins, condiments, &c.

Vegetables.

Cultivation may be described as carried on entirely by slaves, with the exception of the free labourers hired in the height of the clove-gathering season, and to which further reference will be made.

The soil in the cultivated districts may be described, with a few exceptions, as everywhere fertile, and in some districts especially so.

Clove and cocoanut cultivation is undoubtedly the most important industry on the island, and the acreage planted with these two products covers the principal portion of the cultivated area.

Field cultivation, viewed in comparison with other countries, strikes one as very backward.

The ordinary practice appears to consist in allowing exhausted land to revert back to grass and bush, and reclaimed whenever required, being more carefully dug up when situated amongst cocoanut or other trees, and in the open burnt. But the noxious grasses, especially "hook," which is very prevalent and certainly the worst weed on the clove plantations, which this system encourages, must do much harm, being allowed to get a strong hold upon the land, from which light hoeings, however frequent, with the primitive tool in use, will not dislodge them; and I have noticed almost everywhere in newly dug-up land that the soil was matted and bound up with fibrous grass roots.

The Clove Tree.

Undoubtedly the principal and most important cultivation of Zanzibar, and grown wherever the soil is suitable, from the large and extensive plantations belonging to the Sultan and his family to the few trees owned by the more humble cultivator.

Soil of island excellently adapted for this cultivation.

The soil of Zanzibar, with the exception, however, of that of Pemba, which excels it in this respect, is certainly eminently adapted for this cultivation.

The soil most suitable for clove cultivation is "a dark loam, having underneath a layer of dusky yellow earth, intermixed with gravel;" also "a yellowish or reddish stiff clay;" and these typical soils are all found on the island.

A clay soil essential.

Certainly the clove tree requires clay, and I observed there was always a marked difference in appearance between trees growing on a clay soil—red for preference—and those found on a lighter ground; and the finest trees were always either growing on red clay, or else a stiff dark red to darker chocolate soil.

First introduction into the island.

The clove tree (*Caryophyllus aromaticus*) is a native of the Moluccas, and was introduced into Mauritius in 1770 by the French, and at the end of the century an Arab, by name Harameli-bin-Saleh, accompanied a French officer from Zanzibar to Bourbon and obtained permission to take back a small quantity of seeds and plants with him.

This was the commencement of clove cultivation in Zanzibar, Harameli making the first plantation at Mitoni, on the road to Chueni; and the cultivation rapidly spread.

The different methods by which this cultivation is now carried on are evidently borrowed from the French, and the Swahili word for clove, "garafu," is probably a corruption of the French word "giroflier."

Nurseries.

The seeds are first soaked in water for three days, and when germination has set in they are planted out 6 inches apart, with the bud end above ground, into shaded beds—the usual practice being to put down two seeds together in case of failure. If a large number of plants are to be grown the seeds are only put down 3 inches to 4 inches apart.

Size of beds.

Beds are about 6 feet wide, and of any length. They are shaded by a flat framework of sticks, over which is placed a layer of either dry grass or cocoanut leaves; the height of this framework is about 3 feet to 3½ feet.

Watering.

There is no regular rule for this, the important point being to keep the beds constantly damp. The slaves in charge go over the nursery beds both morning and evening, watering any of which the surface has become dry, the practice being to sprinkle water with the hand from the water jar. The process may be summarised as follows: As long as the seedling is not thoroughly developed, every day; when the plants are above ground, every other day; when 6 inches high, once a week or ten days.

Length of time in shaded beds. Hardening.

The plants are kept, on an average, from nine months to one year in shaded beds.

When the plants are about 6 inches high they are by degrees hardened by the thatch of the frame-work being gradually removed, and they are then left in the open beds freely exposed to sunshine for the space of one month or two months before planting out.

The present price of seed and plants, and which may serve as a guide and test of present cultivation, is as follows:—

Price of seed
and plants.

As a rule no seed is sold, but, if a demand, one basketful (the ordinary "kikapo") is sold for 1 dol.

The price of 1,000 hardened plants, 6 inches or more in height, is 16 dol. Plants self-grown, growing under the trees, are sold at the same rates, the purchaser having to collect them.

The usual planting distances appear to vary, and no regular or fixed rules appear to exist.

Planting
distances.

The most customary, as given to me by Ragu, the head overseer of the Sultan's plantations, is 16 thiraa apart, but also in small plantations it is 3 pima, rising in larger ones to 6 pima.

16 thiraa = 24 English feet.
3 pima = 18 "
6 pima = 36 "

ZANZIBAR MEASURES OF LENGTH.

2 thiraa = 1 yard = 1 wari.
2 wari = 1 pima = 1 fathom or 6 feet.

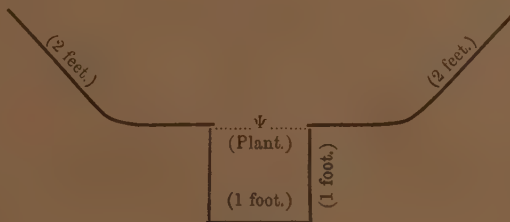
Lining is done by rope, but no pegs are used; the distances being marked by a cut with the hoe. This work is very carefully carried out, and the appearance of the majority of plantations is very striking in this respect, whichever way one looks the trees presenting an unbroken and uniform straight line.

The process of holing is as follows:—

Holing.

A large circular sloping hole, 4 feet in diameter, is cut, in the centre of which is cut a smaller hole, 1 foot by 1 foot or 9 inches wide; this smaller hole receives the plant; the wide upper portion remains unfilled, and serves as a catch-drain or reservoir. This is in process of time gradually filled up by weeds, fallen leaves, &c.

Level.....(4 feet).....of ground.



Special care is also taken in planting out.

Planting.

The earth round the plant is loosened by a peculiar triangular-shaped spade used especially on clove plantations, and called "moaa," and in use in Zanzibar, as well as the ordinary native "jembe," or hoe, already referred to.

The plant is then carefully lifted out by the hand with as much earth adhering to the roots as possible, and placed upon two strips of banana fibre previously placed crosswise upon the ground. (Each strip of fibre is about 3 inches to 4 inches wide, by $1\frac{1}{2}$ feet to 2 feet in length.) The four ends are then taken up and wrapped round the plant and firmly tied together. The plant is then carried to its destination, the strips of fibre effectually keeping the earth in position. Before planting, the pieces of fibre passing beneath are cut at each corner, and the plant finally placed in the hole prepared for it and the earth heaped round; the four ends of the fibre left at the sides are then removed one by one, the bottom portion being cut through enabling this to be done with ease.

After planting out. If the weather is hot, or in the event of drought, the young plant is watered in the evening daily, and watering is continued as required until the plant attains the height of 18 inches, or, roughly speaking, during the space of one year.

No shading. The young plants are not shaded in any way after planting.

Great mortality amongst young plants. There appears to be great mortality amongst young plants, and a good deal of supplying is required, and a nursery is deemed indispensable for five years after a plantation is first opened up. (Probably were the plants shaded until established, their level raised, and less frequently watered, and better hardened before planting out, this excessive mortality would be checked.)

Weeding. After cultivation. No ground or other cultivation is permitted amongst the cloves, but slaves everywhere appear free to cultivate their own plots and gardens amongst the trees, and I have also observed cassava growing in a clearing of young clove trees; and the general run of small "shambas" consists of cloves, cocoanuts, mangos, and other fruit trees, all planted indiscriminately, and close together.

Pruning. No pruning whatever appears to be done.

Manuring. No manuring either, apart from fallen leaves, and this in the more favoured localities where the rows of clove-trees shade the ground must add greatly to the fertility of the soil, the accumulation of leaves being considerable, and the flat nature of the ground preventing wash.

Age of trees. There are some trees now growing on the island which are said to be nearly 90 years of age, but the average length of life of the clove tree in Zanzibar appears to be from 60 years to 70 years, and I have this on the authority of Mahomed-bin-Saif Drumiki, an elderly Arab of much experience, and who has been for over 20 years in charge of the Sultan's plantation at "Indo."

Such terrible devastation resulted from the great hurricane of 1872, when nearly all the clove plantations on the island were destroyed, that the average age of the trees now growing may be put down as below 20 years, and the age of the trees in the Sultan's plantation, the largest in the island, is from 16 years to 17 years.

Appearance of trees. The appearance of the clove plantations is, as a rule, most healthy and luxuriant, the height of the more matured trees

averaging fully 40 feet, and the branches of the two rows often completely shading the ground. Clove trees generally have forked stems, and often as many as three and four, and a single-boled tree is the exception.

So far as I have been able to ascertain, and I have made careful inquiries on this subject, the clove tree is not subject to any fungoid disease, and the percentage of dead, dying, and unhealthy trees noticed by me was very small, and the cause generally was either a damp situation, or else want of cultivation, and the presence of grasses, especially "hook," called in Swahili "Pamba ya moitu."

The clove tree, however, suffers from the attacks of two enemies:—

One, a caterpillar, which attacks the foliage in the dry weather and often denudes the tree of its leaves, but the tree recovers at once as soon as the rains set in.

The other is the white ant, which occasionally attacks the roots.

No remedial measures appear to be taken.

Clove trees begin to yield—

In good situations, 5 years from planting;

In inferior soil, 6 years to 6½ years from planting.

Cocoanut trees are generally planted at irregular distances between the rows of clove trees, but the reason for doing so appears to be quite forgotten, the usual reply being that "it was the custom."

(Cocoanut trees are usually planted here and there amongst the clove trees in Amboyna and the Moluccas, it being believed that the proximity of this tree is beneficial to the clove. The French most probably adopted the custom in Mauritius and Réunion, and it eventually found its way to Zanzibar.)

Mohamed-bin-Saif, the overseer of Indo, informed me that he remembered trees destroyed by the hurricane of 1872, which singly yielded 5 frasilas each (175 lbs).*

Also the head overseer of the Sultan's plantations has furnished me with the following averages:—

Three trees will yield 2 frasilas; 4,000, 50 frasilas.

The picking of the buds commences in August and lasts for four months, and on an average each tree is picked three times in a season.

The unexpanded buds on the trees are at first a pinkish yellow, becoming a deeper red as they mature.

The stalks and buds are gathered at the same time, and thrown on to grass mats spread on the ground; the picking of the higher branches is done by means of triangular bamboo ladders.

Other slaves pick off the buds from the stalks, and they are then spread out to dry in the sun, being taken in every night.

The cloves are dried on mats in direct sunlight. The drying is continued for the space of 6 days or one week.

* 1 frasila = 35 lbs.

Time of
bearing.

Cocoanut
trees planted
amongst
cloves.

Yield of
trees.

Time of
gathering.

Colour of the
buds.

Gathering.

Out-turn.	Green cloves dry down to about half their weight; thus 1 frasila, green, is equal to $\frac{1}{2}$ frasila, dry.
Colour of dried cloves.	The colour desired in the dry clove is red; and buds of this colour are more valued than black.
Hired labour.	On plantations where slaves are not sufficiently plentiful hired labourers (called "kibarua," from the ticket they receive daily) are employed. Each gatherer keeps a separate basket, and in the evening each man measures out the clove-buds picked during the day, and from which he has to remove the stalks. The rates paid are as follows:— In the commencement of the season pice are given; later on the pickers are paid in kind. Five pice are paid for each "pishi" (about 6 lbs.) of green cloves. In favourable seasons the clove-picker receives half of what he gathers. In short seasons only a quarter.
Clove stems.	Nothing is given for the stalks, which, however, are the property of the owner; the measurements and payments are for the buds only.
Dispatch to the coast.	Cloves are dispatched to Zanzibar in gunny bags. There is a duty due to Government of 25 per cent.; this is paid in kind, and the cloves heaped in bulk in the Government godowns.
Government duty.	Public auctions of this are now held by Government every fortnight to allow open competition, and especially to admit European merchants.
Public auctions.	Zanzibar cloves are very dry, differing much in this respect from the Pemba produce.
Comparison between Zanzibar and Pemba cloves.	Zanzibar cloves can be stored for some time, but Pembas are disposed of as early as possible, as otherwise the loss from "shortage" is very great. Pemba cloves generally arrive damp, and there is much shortage when dried. A good dry sample of Pemba cloves is smaller and blacker—blacker from having contained much moisture. Zanzibar cloves are larger, and the red appearance of the dried buds is unmistakable, and they are well-known as "Zanzibar red-heads."
Mode of shipment.	Cloves are generally exported in double mat-bags ("makanda") in preference to gunnies, though there is more shortage—in fact, the difference is marked; though double, the mat-bags apparently permit a greater absorption of damp. The difference of shortage between Zanzibar and Europe in the weight of the cloves equals 8 per cent. The difference between Zanzibar and Pemba cloves is well recognised in Europe, but large shipments of both varieties are also made to Bombay, where they are very probably mixed.
Clove-stalks.	Also large exports of clove-stalks are made to both Bombay and New York.
Export of cloves for 1890–91.	The exports of cloves from Zanzibar for 1890–91 are as below:—

	Quantity.	
	1890.	1891.
	Frasilas.	Frasilas.
Zanzibar	124,929	62,017
Pemba	385,981	326,986

At the present time Zanzibar unfortunately holds the lowest Present position in the London market as regards prices. I annex London quotations of sales from the London produce market reports of prices.
May 13, 1892:—

“77 packages Amboyna at $3\frac{3}{4}d.$ to $3\frac{1}{4}d.$

“388 bales Zanzibar (part sold) at $2\frac{5}{8}d.$ to $2\frac{3}{4}d.$

“Most of the 38 cases Penang sold privately, with a few lots in sale at $1s.$ to $1s. 0\frac{1}{4}d.$ ”

As to whether an improvement in prices is possible, further reference will be made to this question in the concluding portion of this report.

The Coconut Palm.

The second great cultivation of Zanzibar, cocoanut trees being found all over the fertile portions of the island, and very extensively cultivated.

With the exception of solitary lanky trees scattered here and there, the cocoanut trees generally are robust and healthy, but great neglect exists; and I noticed, more particularly in the northern part of the island, many dead and dying trees, which could only be attributed to this cause. Appearance.

The cultivation is very scattered, and no regular order appears adopted in planting, solitary trees as well as thicker groves being observable everywhere intermixed with the large handsome mango trees, so striking a feature in Zanzibar. Cultivation.

As a rule no regular plantations are made, many people only owning a comparatively small plot of land, on which are generally found collected all the chief products grown in the island, viz., cloves, cocoanuts, areca palms, mangoes, cassava, sweet potatoes, &c.

As already remarked, no particular care appears to be taken once the trees are established, the only attempts at cultivation being the clearing of the ground beneath, and this at irregular times, for the growth at ground produce, chiefly cassava, though bananas are also frequently grown between the trees, and in this case greater trouble is taken to keep the ground clean, but as a general rule it is thickly overgrown with grass and bush.

Large plantations, however, do exist, notably that of “kokotoni,” situated in the northern district of that name, covering over 1,000 acres, and containing at one period 80,000 trees. Further reference will be made to this.

Planting distance.	Cocoanut trees are usually planted very thickly and closely together; in fact, some of the grooves appeared overcrowded, giving the trees a lanky appearance. In other places the trees were planted 15 feet, 20 feet, to 30 feet apart.
Yield of trees.	A cocoanut tree is picked on an average four times a year, yielding each time, according to the tree, 30 nuts, 40 nuts, 50 nuts, &c. In good situations, and where the tree is kept in good order and condition, it would yield 300 annually. But many trees neglected and uncared for will only give from 80 nuts to 100 nuts a year, and, with better conditioned trees, an annual average of 120 nuts, 150 nuts, rising to 200 nuts. Solitary lanky trees from 5 nuts to 50 nuts. Reason for poor appearance and yield being bad soil and often old age. Cocoanut trees growing amongst cloves are as a rule lanky, and yield poorly.
Bye-products.	The bye-products of the cocoanut tree are comparatively neglected. Want of labour and of transport facilities—with the exception of a few carts in Zanzibar, wheeled conveyances not existing and pack animals, viz., donkeys, being very little used—are at present the two great obstacles to their development.
Nuts exported to Bombay.	Cocoanuts, in a small degree, are exported to Bombay in dhows.
Copra.	Copra is also exported, and I understand that European firms are now paying especial attention to this.
Coir.	An English firm has now imported machinery for the manufacture of coir. Previously no use was made of the husks, heaps of these being met with thrown on one side, or else being burnt as fuel, the little coir that was made being manufactured in a crude manner by natives from the Comoro Islands, no Swahilis carrying it on, a basket of cocoanut husks selling in Zanzibar for 6 pice, 7 pice, and 8 pice (the cost of carriage), and the beaten and cleaned fibre being shipped to Bombay.
Mode of splitting.	The removal of the husks is effected by either a sharpened iron spike, called "tarimbo" (literally, an iron bar), but the more general practice is to use a sharpened stick for the purpose, called "kifuo."
Toddy.	Toddy is simply sold for drinking and for making vinegar ("su-siki"). Toddy syrup, a species of sugar or syrup, is also made by boiling toddy in a pot for half-an-hour, and sold at 2 pice a cup. "Asali ya tembo," syrup made from toddy. "Asali ya mua," the boiled juice of the sugar cane.
Pemba cocoanuts.	These are easily distinguished from the local variety, being smaller in size and with very yellow mid-ribs, and the nuts are also very much smaller and a dark yellow in colour. They appear to be valued chiefly for drinking purposes, the water in the immature nut being very sweet.
	The nuts when stripped from the husk are exceedingly small,

and the amount of fibre in the husk is also very little. The tree is a native of Pemba Island, and is a very handsome ornamental palm.

The trees are generally planted along paths close to houses, or in small clumps 20 feet to 26 feet apart, and often closer.

The Areca Nut Palm (Areca Catechu).

The value of the nuts of this handsome palm as an article of export is evidently not understood, and its cultivation is confined to small clumps around houses, and it is also frequently planted in close rows along the sides of the roads.

The nuts are all consumed locally.

The cultivation of this palm, which "delights in a sandy soil," could be very largely extended in the island. It takes five years to come into bearing.

The Mango and the Jack (or Jacca) Tree.

One is especially struck in Zanzibar with the appearance of the large and really magnificent mango trees, and this tree is evidently a favourite with both the Arab and Swahili cultivator, and forms a prominent part of the various trees and products cultivated, and is found cultivated everywhere. Every soil appears to suit it, and its robust and luxuriant appearance is most marked.

The trees bear largely, and some of the finer varieties of fruit are noted for their delicacy and flavour.

It bears fruit twice in the year: after the south-west monsoon rains in July to August, and after the north-east monsoon rains in January to February. Crops twice in the year.

The jack, or jacca tree, *Artocarpus integrifolia*, is another favourite tree, but not so extensively cultivated as the mango. The jack tree.

At present both these trees appear to be cultivated for their fruit alone. Their timber, so valuable for upholstery and furniture-making purposes—and in this conjunction so much utilized in India—is little, if at all, used. Both cultivated for their fruit alone.

Neither is any advantage taken of the facilities which the very large number of mature trees now growing—in many places very close together—offer for shade cultivation, and for which this island appears well adapted. Timber not utilized.

The Kapok or Silk Cotton Tree.

Another minor product is the silk cotton tree, viz., the *Eriodendron anfractuosum*.

This tree is known in Swahili as "msufi," and is generally grown in the neighbourhood of houses, the cotton being used locally as a stuffing for pillows.

The following extract from the "Tropical Agriculturist," for May, 1891, will interest:—

"The tree attains to large dimensions, often growing to the height of 80 feet. The trunk is straight, and the branches are borne on the top of the tree. The bark in the lower part of the mature trunk is covered sparsely with thick prickles, which form into small knobs as the tree grows older. The timber of this tree is very light, and hence is only adapted for the purposes of fuel, but of late, after being sawn into planks, it has been used in the manufacture of tea-boxes, &c.

"The plant begins to bear in its third year. The flowers, which are of a pretty large size, with a thick whitish corolla and a cup-shaped green calyx, are borne once a year in February to March.

"The fruits are long and cylindrical, about 5 inches in length and 3 inches in circumference, and are filled with a downy cotton staple, very short, and curled, interspersed with black seed.

"This down forms the 'kapok' of commerce.

"The productive power of the trees differs much according to size and age. For instance, a fully-grown tree with numerous branches might yield about half a hundredweight or even more of kapok, while a young tree with a few branches might yield not more than a pound or two.

"The export trade in kapok in Ceylon is of very recent origin, probably not older than 10 years. Previous to this the product had only a local demand for the purposes of stuffing pillows, cushions, &c., and this demand was so small that it did not even encourage the collection of the kapok found on the trees which were growing wild.

"Since an export trade has begun, the demand has increased so much that not only is kapok carefully collected from the trees growing wild, but great care is taken to preserve it, and plant new trees wherever the opportunity occurs.

"There is a large demand for the article in Australia, where it is used in the manufacture of pillows and cushions; and it is also exported to Holland and Fiji, where it is said to be used for the manufacture of cloth.

"Ceylon is not the only country where this article is produced, for Java, Sumatra, and the adjacent island are also exporting it largely.

"The cultivation of the kapok-producing tree in Ceylon could be very much extended, not by growing it as a separate product, for then it would not pay, but by planting the trees at intervals in the low country plantations as shade and boundary-trees."

The Papaw Tree.

Generally finds a place amongst other cultivated products, the fruit, both green and when ripe, being much esteemed as an article of diet.

Reference is here made to it on account of its probable future importance, as from the milky juice of the fruit a new peptonizing agent has been obtained, called "papain."

"And the experiments of careful observers have shown that 'papin,' or 'papain,' in concentrated solution, will dissolve more meat fibre or coagulated albumen than will pepsine in the same time."

The tree is more easily and quickly raised from seed, attaining a thickness of 1 foot by the third year, and commencing to decay during the fourth or fifth year. The straight and undivided stem is herbaceous and soft, though it develops an external layer of fibrous tissue; as might be expected from the rapidity with which it grows, the trunk is hollow, though it has more or less dense, imperfect septa.

"The newer parts of the stem are green, but as they age become greyish; towards the top it also bears the scars formed by the falling-off of leaves, which are arranged in a kind of umbellate canopy."—"Tropical Agriculturist," October, 1891.)

It grows to about 20 feet in height.

Foreign and Native Fruit Trees.

Wherever the smallest attempt at care or cultivation is made, The orange. fruit trees respond readily, and amongst these the orange takes the first place.

It is largely cultivated in the larger properties, generally grown in rows, but in the smaller "shambas" scattered amongst other trees.

There are two principal varieties, the bitter and the sweet, Two varieties. and the numerous names distinguishing the different fruit show the esteem in which it is held amongst the Swahilis.

The tree bears only once in the year, and the annual crop of fruit must be very large. Bears once a year.

It has been suggested, I understand, to open a trade with India, by shipping the surplus fruit to Bombay. Suggested export to Bombay.

My experience, as regards Southern India, hardly favours the proposal, but every effort tending to develop the trade of Zanzibar should certainly be encouraged. Bombay and the northern coast of India offer a large field, and it is further pointed out that the seasons of cropping of the fruit are different in the two countries. If a successful trade is developed, Aden also offers possibilities, with its European garrison and the numerous passenger-steamers, inward and outward bound, now calling there.

Other cultivated trees, but in a much smaller degree, are: the date palm, pomegranate, custard apple, guava, fig, and cashud- nut tree, and I also noticed one or two nutmeg trees. Foreign and native fruit trees.

Of the native fruit trees indigenous to the island, the more important appear to be:—

The "Zambaran," a very fine handsome tree and bearing a (1431)

small luscious fruit, somewhat like a red plum, but a darker red.

The "Mtofaa," also a fine tree, with large leaves.

The "Chokochoko," bearing a fruit with "a red prickly skin, a large kernel, and white pulp." (Steere.)

The "Kunazi," "fruit like a sloe." (Steere.)

The "Bungu," "about the size of a medlar, with a thick russet skin." (Steere.)

Coffee.

Coffee
arabica.

Coffee arabica is cultivated—or, more properly, exists—on the island, it being found in one or two "shambas" in the Moira district, and, from a planter's point of view, much neglected, being neither topped nor pruned.

Under shade it might certainly be cultivated, but never more than to supply local demand.

Coffee
iberica.

A few trees of this Liberian coffee variety were planted by Sir John Kirk in "Mbweni Shamba," close to Zanzibar. The trees were attacked by *Hemileia vastatrix* the leaf-disease plague of India and Ceylon, when seen by me, but otherwise healthy, though much neglected. I would not recommend the extension of this cultivation on the island, as I consider that more remunerative returns can be obtained from other more suitable products.

Alimentary Plants.

Sugar cane,

Eminently adapted to the island, but the cultivation is declining.

Decline in
cultivation.

Seyyid Barghash, the great Sultan of Zanzibar, gave a great impetus to this, as he did to all other Zanzibar industries, but since his day a great falling-off has occurred; things in Zanzibar are no longer what they were; the Arab no longer cultivates as of yore; slavery, his sole means of cultivation, is doomed, and much land was pointed out to me as at one time under sugar cane, but now completely reverted back to bush, and the land now actually under this cultivation is comparatively very small.

A steam sugar mill exists on the Sultan's plantation at Chueni, and there are, I believe, a good many mills worked by water to be found on the island, though personally I only saw two, and the fact greatly impressed me that the Sultan's plantation at Mdo, situated in the northern part of the island, under the reign of Seyyid Barghash a flourishing sugar plantation, is now entirely abandoned, the fields overgrown, and the mill and machinery fallen into ruin and decay!

At Kokotoni, also, the large cocoanut plantation already referred to, sugar-cane cultivation was carried on by Mr. Fraser (the original proprietor or lessee) most extensively for the period of six years, and yielding, I understand, a most profitable return, personal reasons alone being the cause of its discontinuance.

The water supply on the island is abundant, and the many low valleys and large extent of low-lying ground offer every facility for the extension of this cultivation.

The above remarks apply with equal force to rice cultivation, Rice, which, considering the very large area of suitable land, is not carried on to the extent that it might be.

Both wet and dry cultivation are to be seen; but a systematic irrigation, as understood in India and Ceylon, is not known, advantage being merely taken of the flooded banks of rivers and swampy bottoms of low valleys so frequently met with in the island.

At present rice is imported.

Bananas, the most important—with cassava—of the secondary cultivations, and forming in a great measure the staple food of the people.

Rice is imported.
Bananas.

It is grown everywhere, either in rows between the cocoanut and other trees, but also very frequently as a special product, and is always found round houses, and the numerous plantations of this useful plant add much to the beauty of this very fertile island. It grows and yields most luxuriantly, and some clumps growing in the northern portion of the island were from 18 feet to 20 feet in height, with stems having a circumference of $3\frac{1}{2}$ feet to 4 feet, 1 foot above the ground.

Abundantly cultivated.

A rich black loamy soil appears the most suitable for this product.

Cassava.

Before entering into details concerning the cultivation of this and other ground produce, I would wish to emphasize the fact that all field cultivation meets local demand only, no exports whatever being made.

Ground produce not exported.

Cultivation, - as already stated, is in an extremely backward condition.

Backward state of agriculture.

Manuring is only attempted in the smaller house gardens, whilst no cultivation is carried on in the open fields, except hoeing, and, periodically, weeding the ground.

Cassava is an exhausting crop, and the present practice appears to be, after one plot of land has borne two or three successive crops, to clear a fresh piece elsewhere; and the result of so many years' mere surface cultivation is noticed in the earth being completely matted with fibrous grass-roots; the surface hoeings, where the "hook grass" has obtained a hold, cannot dislodge it, but, on the contrary, encourages its growth; and this matted state of the soil must form a great check to cultivation, and is especially productive of much harm to cocoanut trees by materially obstructing the roots of these trees in their search for nourishment, and doubtless chiefly accounts for the unhealthy appearance and many deaths noticed by me amongst them.

Pernicious present system.

Cassava is the chief ground cultivation, and forms the principal article of food.

Two varieties
cultivated.

The two varieties are cultivated: bitter cassava, and sweet cassava.

The bitter cassava was, I believe, introduced from Mauritius, where it was originally brought from Brazil; it is not so highly cultivated as the sweet variety, owing probably to the greater trouble required in its after-preparation, and also to its lesser yield: still, the small wooden framework on which its roots are dried is generally to be found in front of most native houses, the roots being dried on these frames for a week and then ground and pounded into flour.

The sweet cassava is the most extensively cultivated either in open fields or in raised beds, but I could discover no special reason for this last practice, for often these were made in very fine friable soil.

The cultivation is extremely simple, cuttings being merely placed in the newly-holed field or bed at irregular distances, no drills or trenches being made, and 6 months being the average time from the planting till the digging up of the roots.

Newly planted fields are generally kept very clean; when once established less care is taken.

No export.

No attempts at manufacture and export of tapioca, "the farinaceous matter of the roots, separated and converted into a kind of starch," have ever been made.

As interesting, I quote below the London ruling prices in May last:—

	Prices per Lb.	
	From—	To—
	d.	d.
Singapore	1½	1½
Penang	1½	1½

1,373 bags pearl (fourth sold) medium, 12s. 6d. to 13s.; dull, 11s. 6d. to 12s.; bullet, 17s. 6d. per cwt.

Maize.

Maize, or Indian corn, does not appear to be so extensively cultivated as cassava, and wherever growing its cultivation appears generally to be combined with dry rice.

"A sandy loam is the soil best suited for maize. . . . As a fodder crop its yield is enormous. An acre of land has borne from 50,000 lbs. to 80,000 lbs. of green fodder, or from 8,000 lbs. to 12,000 lbs. of dry feed. . . . The meal of the corn is

extremely nutritious, as it contains four times more oils than wheat, more starch, and almost as much nitrogenous matter."—Haldane's "Sub-Tropical Cultivation."

Of other grain cultivation, "mtama" or millet does not appear to be cultivated much, if at all, at present, though previously a good deal of land was taken up with this product. Millet not cultivated.

Some other small varieties are also cultivated in a small degree. "Wimbi," a small variety of millet; minute grain, Other grain cultivation.
"kimanga"; and "mware."

Beans and Peas.

Several varieties of these are grown. The most generally cultivated is the common "kunnde," grown in the open fields, and bearing a large nutritious bean, which appears to be the principal food of the slaves; there are, besides, "fiwe," a climbing plant, and "baazi," apparently much esteemed, and a good deal cultivated either in proximity to houses or else in rows along the boundaries of fields, &c. The plant grows to the height of a small bush.

Arrowroot.

A variety of this is to be found in most native gardens, and named "uwanga," but which I do not think is the true arrowroot ("*Maranta arundinacea*"), the shape of the leaves differing, though the preparation of the roots appears to be the same; "uwanga" bearing a fleshy knotty root, which is ground and washed in repeated waters, and finally sun-dried. This preparation, mixed with sugar, forms a favourite sweetmeat with the Arabs.

I see no reason why arrowroot should not be more extensively cultivated on the island, and form an article of export. The cultivation is easy, and immediate returns are obtained:—

"The plants are propagated by parting the roots. A light loamy soil is the most favourable for their growth. When they are a year old the roots are in a fit state for use."—Porter's "Tropical Agriculturist."

Present prices are:—

Description.	Prices per Lb.	
	From—	To—
St. Vincents	d. 4½	d. 5½
Other lots	3½	3½

Ground Nut.

Of the ground-nut (*Arachis hypogæa*) two varieties are known locally—"Mjugu Nyassa," "Mjugu mawé."

The first is the ground-nut of commerce, the second yielding a smaller round nut, but also containing oil.

No exports.

At present no exports are made, and the nuts appear to be only consumed as an article of food.

The cultivation is comparatively small, and appears to be more particularly confined to the country lying between Dunga and the capital.

In my opinion the cultivation of this product could be very largely extended, the soil of the island being very suitable; the ground-nut requiring "Deep, rich soil, of a grey colour. . . . Calcareous soil suits it best."

The yield is very large.

"In a good year the crop is 100 bushels an acre. It is a most profitable crop—few are more so. . . . The seeds contain 42 per cent. to 50 per cent. of oil."—Haldane's "Subtropical Cultivation."

"Professor Church's analysis of the ground-nut (*Arachis hypogæa*), shows that it contains of water, 7.5; albuminoids, 24.5; starch, 11.7; oil, 50.0; fibre, 4.5; ash, 1.8. The oil which forms such a large proportion of the ground-nut is of a pale, clear, straw colour; it will not become rancid, and improves with age. It is known in commerce as nut oil, and is not only adulterated with, but is substituted for olive oil. It is valuable as a lubricant for delicate machinery. . . . The stems of the plant, after removal of the crop, forms a most useful fodder which cattle are very fond of."—"Tropical Agriculturist," September, 1891.

Ground-nuts are becoming an important and valuable export, and an increased demand has sprung up, Marseilles being the principal centre.

I understood that the chief reason for the small present cultivation is that it is a very exhausting crop, certainly not more so than "cassava," and this objection does not apparently carry great weight with the native cultivators in the eastern districts of Southern India, from which the annual exports of ground-nuts are very large.

And it would certainly be a great step in advance if the profits derived from the export of this product were to induce land-owners to pay greater attention and care to the upkeep of their fields.

The Imperial British East Africa Company, recognising the special importance of this cultivation, has imported some seed from India, the Indian variety being larger than the local kind.

Oil Plants.

Reference to ground-nuts brings me naturally to oil plants. |
Sesame or gingelly does not appear to be cultivated in the ex-

tensive manner carried on on the mainland, and altogether oil plant cultivations appear an entirely secondary matter.

"Mbono" is a variety of oil plant yielding oil from the seed; it is not largely cultivated, being chiefly grown in gardens and the neighbourhood of houses. Its leaves, in conjunction with those of the "baazi," being also used medicinally for stopping the bleeding of cuts and wounds.

The castor-oil plant is also found on the island.

Pepper (Capsicum frutescens).

The pepper vine is not cultivated.

The variety growing on the island is the *Capsicum frutescens*, usually termed the "shrubby capsicum," and producing the bird's-eye chillies forming the basis of cayenne pepper.

This is to be found in a small degree in every shamba, but the principal source from which the annual exports are derived is the eastern side of Zanzibar, and the cultivation here is chiefly in the hands of the Wahadinu people.

Judging from observations made during my brief visit to this portion of the island, east of Dunga, the chillie cultivation struck me as being of a very scattered nature, generally small isolated patches from half to one or two acres in extent, and combined with tobacco, tomato, pumpkins, &c.

I regret my inability to quote the annual total exports, but I believe they are large, and an undoubted source of revenue.

Now, as the chillie is, as yet, the only product of any value grown in this less favoured portion of the island, I consider that this cultivation could be extended, and that a little fostering care might be productive of much advantage.

It is a cultivation easily carried on, and calling for no special trouble or skill, and the returns are certain and profitable.

At present the people are so blind to their own interests as to purposely depreciate the value of this product; thus I understand that through fear of possible shortage by theft on the way down, owners actually damp the chillies before dispatching, and it is often necessary, on their reaching the Government customs godowns, to dry them as quickly as is possible as the only chance of saving them.

Another variety bearing larger red and yellow pods is also cultivated, but the produce from this is all consumed locally.

Pine Apples and Aloes.

Sir Gerald Portal has already called attention to the fact of pine-apples and aloes growing properly on the island in a wild state, and to the practicability of a trade in the manufacture of fibre being established, and I have given this matter my particular attention.

Practicability
of a useful
trade in fibre.

There is a very great probability that, were a commencement in this industry attempted, the after results might prove of a highly important nature.

Apart from the possibilities of Zanzibar itself, a very large area in the Imperial British East Africa Company's territory is known to be very rich in fibre-producing plants, and there is, in my opinion, the foundation of a very large and extensive trade in this material from this quarter, and further and fuller reference will be made to this subject in the third portion of this report.

Native Vegetables and Condiments.

Vegetables. Native vegetables call for no particular notice. Those ordinarily cultivated are:—

Sweet potatoes (two varieties), generally grown in raised beds; pumpkins and cucumber, radish (a variety of); "tondoo," a small brown nut containing oil; also "dadoki," "a long many-angled seed-pod"; "jinbri," "a root very like a hyacinth root."—Steere.

Turmeric, "hungani," cultivated in the centre of the island.

Condiments. Yams do not appear to be cultivated; their introduction would benefit the people, being a most nourishing vegetable, and should do well on the island.

Domestic Animals.

Cattle. The scarcity of cattle on the island is very noticeable, the few cows that are kept being solely for milking purposes. Bullocks I only saw in the town dragging Government carts.

Cattle and manure. I would remark here on the very little attention that is paid to manure, even in the absence of the most fertilising substance, viz, cattle manure, much might be done by the people, such as, for instance, burying all weeds and rubbish in shallow trenches between the cocoanut trees, and utilising ashes, seaweed, &c. The island possesses excellent nourishing grasses; Madagascar is not far away, and possesses, I understand, a good breed of cattle, and the benefit of a better culture to all cultivated products need not be enlarged upon.

Goats. Large herds of goats are common, and goat milk largely consumed.

Donkeys. Donkeys are much used for riding, but very little for transport.

No. II.—DESCRIPTION of the Chief Characteristics of Soil, and Cultivation of the Portions of the Island visited.

The route followed and carefully planned out to enable me to visit the more important parts of the island was as follows:—

North, from Zanzibar to Kokotoni ; distance 21 miles ; halting on the way at Chueni.

South, returning from Kokotoni by Mdo ; distance 5 hours to Dunga ; distance from Mdo $2\frac{1}{2}$ hours.

East, visit to barren portion east of Dunga.

West, Dunga to Zanzibar ; distance 12 miles ; visiting the Valley of Bonde la Msungu on the way.

Thus I have traversed the whole of the more important portion of the cultivated area, with a brief visit to the more barren and exposed side of the island.

Zanzibar to Chueni ; distance 7 miles.

I particularly noticed the excellently arranged system by which water is conveyed into the town from a natural spring situated at Chem-chem, about 3 miles or 4 miles distance, and originally commenced and carried out by an Arab. The water is first brought from the spring—now carefully built over and protected—by a large built-in drain, well supplied with open ventilating holes ; these, nearer the town, where the fall in the ground necessitates it, iron pipes, about 1 foot in diameter, have been connected, supported by solid pillars of masonry, of an average height of from 4 feet to 5 feet, and in the town itself these are carried on underground, being largely extended to the various quarters of the town. Water supply of Zanzibar.

The extreme greenness of the vegetation everywhere was very striking, and a great contrast to the mainland. I noticed several large patches of uncultivated land overgrown with high grass. Appearance of country.

Cocoanut trees growing in clumps, and also scattered trees ; these last are very thin and lanky, and tapering up to a great height.

I especially noticed and admired the numerous and very large and luxuriant mango trees.

Chief cultivation seen was cassava. Also latterly passed through some small clove plantations.

Road running parallel to sea.

This is a large clove plantation, the property of the Sultan, Chueni with a handsome large palace built close to the sea, which was very courteously placed at my disposal during my stay. Chueni plantation.

The plantation, which is situated on the direct road to Kokotoni, and comparatively close to the sea, is very extensive. It is surrounded by some scattered and irregularly planted trees, but once these are passed the extreme regularity of the rows of trees is very striking, and much impressed me from a planter's point of view.

The trees everywhere appeared most vigorous and healthy, and few or no vacancies.

Age of the trees, 17 years.

Cocoanut trees are planted at irregular distances between the rows of clove trees.

Along the roadside are some areca palms, closely planted.

Slave huts are scattered here and there among the clove trees, and surrounded by small plots of cassava, sweet potatoes, and clumps of bananas; also a few open spaces with small clumps of cocoanut trees.

Soil, grey to dark loam surface.

Subsoil, clay.

Upkeep.

There was a good deal of grass, and the plantation could not be described as clean; still, in comparison with others, it is well kept up.

Sugar mill.

The estate also possesses a steam sugar-crushing mill with permanent buildings, which are in good order. The comparatively small amount of sugar-cane now grown is crushed here.

Country and Cultivation to North and North-West of Chueni.

No cloves; all open cultivation.

Uncleared land.

Much uncleared land, chiefly overgrown with high grass, and much "hook" amongst it. This grass is very bad, and very difficult to eradicate once it gets upon the land, spreading rapidly from the roots.

The lay of the land is level, with many low hollows and valleys, generally with water.

Both varieties of cassava are cultivated, and this is the chief cultivation, fields of it being very frequent.

Sugar-cane and rice are cultivated in the hollows and valleys referred to above. The appearance of the sugar-cane was very fine in places, but the cultivation is not large, and both it and rice could be much more largely grown, the water supply appearing abundant.

Cocoanuts are very plentiful and scattered all over the country, intermixed with numerous mango trees, some of which were really magnificent trees. Regular plantations of cocoanuts are rare, I only having seen one close to Chueni clove estate, and they are generally planted in clumps, and being thickest in the vicinity of houses; scattered trees are also numerous, and generally have very lanky stems, most probably owing to the land surrounding them being long left uncultivated.

Small clumps and plantations of bananas are frequent, as also are orange and other fruit trees, and around the houses are generally small gardens, in which the native produce enumerated in foregoing pages is cultivated.

To the European eye the want of system and care is manifest, but the luxuriant appearance of vegetation everywhere testifies to the great fertility of the country.

Soil varies in character; near the shore chiefly black to grey, in places very sandy loam; further inland a dark chocolate, often 2 feet in depth, alternating with a lighter loam.

The subsoil is clay, the substrata coral. The soil is much

mixed up with fibrous grass roots, while the soil in valleys and hollows is a rich stiff black.

Country and Cultivation to South of Chunei.

A rich country and well populated, and clove cultivation is here the prominent feature.

Much uncleared land and "hook" very prevalent.

Cassava is the chief cultivation, with occasional fields of rice and Indian corn.

A small sugar mill is being erected on property belonging to Ali-bin-Issa, a large proprietor, whose father, I was informed, formerly owned 1,900 slaves and 16 plantations.

Some very luxuriant fields of sugar-cane close by.

Close by here a European firm are erecting buildings to carry on this industry, the machinery to be worked by steam (12-horse power).

Cocoanut trees and mangos everywhere.

Large clove cultivation, both scattered and grown with other products, and in large separate plantations.

Some of the clove plantations passed through were very large, and amongst them I would particularise:—

"Kijiti," the property of the Sultan, and one of the most extensive on the island.

From a low hill I obtained a general view of this fine property, extending far to the right in regular unbroken lines. Trees all mature and vigorous.

The plantation was very clean, but "hook" had in places got a hold upon the land.

The soil was everywhere a bright red clay.

"Kongoni," another plantation of the Sultan's, but here clove cultivation was combined with cocoanut, bananas, and ground produce.

The lay of land—with the exception of one or two low hills—and cultivation were the same as previously described.

Speaking generally, I would lay stress on the neglected condition of the cultivated land, and would instance a fairly large plantation of cocoanuts passed through by me, the ground beneath being completely and thickly overgrown with the dense bush and grass, and there were many vacancies amongst the trees.

Wherever, through fault in the soil, clove cultivation is not carried on, neglect at once is apparent, and I passed over a fairly large plain with light grey sandy soil (declared to be unfavourable to the clove), and, with the exception of a little cassava and some scattered mango trees, this was quite uncultivated.

Soil varies from grey loam to red, but may be described as bright red, with a darker coloured chocolate mixed with disintegrated coral.

The subsoil is clay.

Slope of low hill, with soil cut up to depth of 5 feet by heavy wash, consisted of deep red clayey loam.

And on Kijiti plantation a deep red loam with sandstone substrata, often very close to surface, very friable, easily broken, and very porous.

Chueni to Kokotoni (distance 14 miles).

The nature of both cultivation and soil vary so greatly that a summary of my notes will best convey a description of the chief characteristics of this portion of the island.

The lay of the land is flat; scattered cocoanuts, cassava fields, a little rice, sugar-cane in hollows.

Soil is grey loam.

Then cloves and cocoanuts; cocoanuts on both sides, with bananas and cassava cultivated underneath.

Soil is red to chocolate loam, darker in patches; rich and very consistent.

Apart from cocoanuts and some scattered mangos, nothing but slave cultivation and huts amongst clove trees.

Beyond, clove trees more scattered and mingled with cocoanut and mango trees; open spaces with generally cassava, which, with sweet potatoes, is cultivated in raised beds.

A good many areca palms planted at intervals along the road.

Soil changes to grey loam.

Cloves cease; solitary mango trees scattered about country, and now very thick groves of cocoanut trees.

Much uncleared land; soil very grey sandy loam.

Beyond cloves begin again, but not so luxuriant in appearance; average height, 20 feet to 25 feet; sweet potatoes growing underneath.

Here open cultivation, entirely cassava, either in open fields or in raised beds (there does not appear any method in this); this intermingled with some young clove plantations and scattered clumps of cocoanuts.

Soil is chocolate, inclined to red.

Subsoil is clay.

Then through a large flat, low valley, and, with the exception of some small isolated patches of rice, this was nearly all grass, with pools of water here and there.

Soil is tenacious black loam.

On further side of valley clove plantations, interspersed with open cassava fields, some areca palms, then much uncleared land, with clove plantation on far right.

Soil is grey loam.

Then small cultivated area, with houses surrounded by mangos, cocoanuts, and some fine jack trees; clove plantations in distance on both sides.

Soil is continuous grey loam, and now more consistent.

Then much uncleared land, chiefly grass, but no "hook" observed here.

Beyond, very flat low country.

Characteristics: much uncleared land, with cassava fields,

small and few, and here and there scattered clumps of clove, cocoanut, and mango trees.

Clove trees about here much smaller foliage, and of a marked yellow in colour. Average height, 15 feet, 20 feet, and 25 feet.

Probably soil too damp and low, in fact, in one place rice was actually being grown below the trees, and the appearance of the clove trees generally was not satisfactory in many places. Much neglect in cultivation was evident.

Soil is grey to black loam.

Here crossed small river, named "Zingue-Zingue."

Other side, lay of land very flat and low. Clove cultivation ceases.

Country nearly all grass and uncultivated. Here and there a little cassava, with also a few patches of rice, cocoanuts, and isolated mango trees.

Soil is grey to black loam.

Cocoanut cultivation here extremely scattered, and the ground beneath the trees everywhere covered with dense grass and bush.

About half a mile beyond river I passed some dead and dying trees.

Soil here is black to grey loam.

Further on passed more dead cocoanuts on left. The trees growing here appear utterly neglected, growing as best they can on this flat plain, which is a tangle of grass and bush, and I observed many yellow leaves amongst the cocoanuts, a sure sign of distress.

There appears no fault with soil, here of a more sandy nature, and the bush and grass is everywhere luxuriant enough.

Here and there are scattered houses, with some mango trees and a little cassava, and around these the cocoanuts are thicker and more healthy in appearance.

This appearance of the country continues the same for some distance. Here and there a cultivated shamba is passed, but as a rule the greater part of the country is uncultivated and scarcely inhabited. Noticed much "hook" grass about here.

In the middle of the plain noticed some few wild oil palm trees, termed in Swahili "Inchikichi."

Soil is generally a sandy grey loam, more sandy in plain.

A low hill to north-west, called Denge, thickly covered with cloves and cocoanut trees.

Abreast of this cultivation improves a little, and I passed a fine plantation of young cocoanut trees. Land below uncleared.

Soil is still grey loam, but less sandy.

Then crossed second small river, flowing at right angles to path, and named Monakombo.

Soil of banks is dark grey, stiff loam.

The opposite side of this river presented much the same appearance as the first. A low-lying plain, with a few isolated patches of rice growing in swampy hollows, some detached clumps of cocoanuts and scattered solitary mango trees, otherwise uncultivated and grown up with grass.

Soil is stiff grey to black loam, very retentive of moisture.

On east side of plain scattered cassava fields with occasional clumps of cocoanuts and mangos.

Denge Hill now lying right ahead, due north.

The general appearance of the plain now traversed may be summarised as follows:—

Now and again a low gentle hollow, generally with water, and these, as a rule, were cultivated (rice and native produce), whilst cocoanut clumps, intermixed with mango trees, surrounded the few houses.

Soil in hollows, black loam.

But otherwise the plain, with the exception of very scattered, unhealthy, neglected clumps of cocoanut trees, and an occasional patch burnt and cleared for cassava, was uncultivated and grown up with grass, and here "hook" was frequent.

Soil is generally a light grey loam.

Close to Denge Hill, actually a low ridge, plain opens out into a fine fertile, low valley, and cultivation again becomes prominent, and close to Kokotoni plantation, lying right ahead, I passed through a good deal of very fine young rice, wet cultivation, water being abundant.

Soil is a rich black loam.

And shortly after entering Kokotoni plantation, crossed a small river named Kipange, flowing between deep banks of very tenacious grey loam.

Kokotoni
plantation.

A brief description of the Kokotoni plantation will be instructive, as it is so far the first attempt of European enterprise in the way of cultivation as yet made on the island.

The present owner is an Indian merchant, whose father took it over by foreclosing on the mortgage held over the original Arab proprietor. A Mr. Fraser leased the estate for a term of years, and greatly extended it, making it eventually the largest property on the island.

A large and substantial sugar factory was erected, and valuable machinery (worked by steam power) imported from England, and for, I understand, a period of six years sugar-cane cultivation was carried on extensively, yielding large and profitable returns.

From purely personal reasons this was discontinued, and Mr. Fraser next turned his attention to cocoanut cultivation. Originally there were but 5,000 of these trees growing on the estate, but large plantings were made, and cocoanut-oil crushing mills added to the machinery, and shortly after Mr. Fraser's departure an enumeration showed the very large number of 80,000 cocoanut trees as growing on the estate, to which 1,400 clove trees, 65 orange trees, 240 mango trees, 28 Jack trees, and 85 areca palms were subsequently added.

From the low hill on which the residence is built one commands an extensive view over this large and once valuable property, admirably situated in the low fertile plain bordering the sea, the thousands of cocoanut trees stretching away on

every side, with here and there detached fields of luxuriant rice, and out at sea the Island of Tumbatu lies nearly opposite.

At present the estate is being worked as cheaply as possible under the charge of a native overseer, and, with the little care and attention now paid to it, it is fast lapsing back from its original value.

The factory is now useless, and its once valuable machinery ruined by rust and disuse, whilst the plantation itself, which I traversed from end to end, everywhere presents the same picture of utter neglect, the regularly-lined cocoanut trees utterly choked up with thick grass and bush; so much so that the overseer informed me that many nuts were lost through falling in this dense undergrowth; and I occasionally noticed some self-sown plants struggling on as best they could.

Good cart roads were originally cut by Mr. Fraser, who appears to have shown great enterprise, but these are also quite overgrown and neglected, only one cart and two bullocks being in use on the estate to collect the gathered nuts.

The cocoanut trees on the estate are said to be about 20 years old, and the average planting distance is 32 feet, 35 feet, and 40 feet.

The trees generally have a decidedly red and unhealthy look, whilst the foliage is of a marked yellow appearance. Many vacancies and deaths are noticeable; trees in many places have succumbed to continuous neglect.

The soil varies from a stiff black, in more favourable sites, to a lighter grey loam, but all fairly rich.

The River Kinauge flows through the property, and the banks are in places fully 7 feet to 8 feet deep, showing the volume of water brought down in the wet season. No stones are visible, and the soil appears to consist throughout of a deep stiff, grey loam.

I was especially interested in the healthy and vigorous appearance of the cocoanut trees on the margin of the river, up which the sea-water tide is felt, and where mangos are also growing, the trees here being of a marked luxuriance.

The small amount of labour required is supplied by freed slaves, of whom about 30 reside on the estate, extra labour for gathering nuts, &c., being obtained as required, the daily wage paid being 16 pice (say, 4 annas), which is, I understand, the average rate for hired labour now ruling. Hired labour in this part of the island is, however, very scarce and difficult to obtain, and the report as to the behaviour of the freed slaves was not encouraging, they being proverbially idle and lazy, and requiring constant supervision.

No toddy is collected from the trees here.

My attention was also particularly called to the very small size of many of the nuts, caused by the neglected condition of the trees.

Nuts are gathered for the copra, but owing to the distance Copra. from Zanzibar and the difficulty of transport, a good many nuts
(1431) C

appeared to be shipped direct to Bombay, and a dhow was being loaded at the time of my visit.

Cair fibre.

No use is made of the husks, which are left to rot in heaps, the small demand and difficulty of transport being the reason given.

In conclusion, I may remark that here, as elsewhere, every information and facility was freely afforded me.

Country and Cultivation round Kokotoni.

Country and
cultivation
round
Kokotoni.

A sufficiently large area of the country here was carefully gone over by me; in fact, I described nearly a complete circle round "Kokotoni," to enable me to ascertain the chief characteristics of soil and cultivation.

The lay of the land is, at first, gently undulating, with scattered low hollows; as one proceeds the land becomes more undulating, long low ridges with intervening hollows being well defined; then very level flat land, with occasional low fertile valleys.

Water-supply abundant, water being generally found at the bottom of most hollows and valleys, and I besides passed through two streams, one with deep banks worn by the rush of water.

Soil varies very much; the banks of the second watercourse consisted of very black to grey loam, with a subsoil of stiff black clay.

The soil of the undulating country first passed over was—

1. Deep red clay, alternating in places to a rich black to chocolate loam.

2. Grey to black loam—clayey subsoil.

3. Grey to black loam, sandy.

Of ridges: Red to chocolate loam on slope; higher up, stiff black clayey loam with scattered small coral stone.

Of large luxuriant clove plantation: Surface, and for depth of 6 inches, black loamy sand; subsoil, stiff black clay.

Of hollows with water: Surface soil, black loam washed away; subsoil exposed, yellow clay.

Of level flat land: A rich dark red to deeper chocolate; water in puddles coloured dark red to yellow.

In level flat land: Very rich, stiff, brown to chocolate.

" " Ditto, more inclined to brown.

" " Red clayey (very), and yellow in places; coral outcrop.

In low level valley: Black to grey sandy loam.

In river bed: Clayey stiff loam; coral outcrop.

"Waugwa" is specially noted as one of the barren areas, or so-called as above; and I annex extract from my notes:—

"Beyond here, open plain with rice fields (dry). Soil, sandy grey loam, very sandy and inferior. The appearance of both the rice and the bush and grass on uncleared land very poor and straggling. Coconut trees, yellow foliage and unhealthy; but

mango trees, some very fine. This plain fairly extensive. Soil, inferior and very sandy. Coconut trees all round this plain thin and lanky. Soil of land cleared for rice cultivation; surface, very white to greyish white, from sandy nature of soil."

Cultivation is fairly extensive, and country seems well cultivated. Cassava, as usual, chief cultivation (ground). Sugar-cane patches in hollows. A good deal of rice, but principal product here, certainly, cloves; this was cultivated both in regular plantations (some of these fairly extensive) or else more scattered; and I passed through one or two young clove plantations, irregularly planted, with rice and cassava being grown underneath.

The clove trees growing about here vary from 4 years, 6 years, 7 years, 10 years, and the oldest trees did not exceed 16 years of age.

As a rule the appearance of clove trees is very vigorous. Young trees generally have a very marked yellowish appearance in the foliage, which disappears as the tree grows up. I saw some trees 10 years of age, fully 30 feet to 35 feet, and in some cases fully 40 feet in height, but this was exceptional. Other plantation trees, 6 years to 7 years, and very luxuriant and vigorous in appearance; foliage a deep healthy green; average height, 25 feet. Also many younger trees, probably 3 years to 4 years old, and these generally very scattered. Also noticed a marked difference in appearance of trees growing in sandy loam and those in a more consistent soil; clay undoubtedly most unsuitable for this cultivation.

A fairly large number, but not especially numerous, more frequent on level country, in some places much neglected. These trees generally found in clove plantations, and, as a rule, rather thin and lanky. Coconut trees.

Some of the mango trees very fine, and these are scattered everywhere. Orange and other fruit trees frequently noticed. Mango and other fruit trees.

A good deal cultivated, and it was in this district that I saw the particularly fine specimens referred to at p. 19 of this report. Bananas.

A considerable area, and "hook" appeared very prevalent. Uncleared land.

Kokotoni to Mdo.

Certainly the richest and most fertile portion of the island. It took me 5 hours exactly, marching with my porters, to accomplish this distance, having left at 6 A.M. and arrived at 11 A.M., and as on the road I frequently timed myself, I think a fairly accurate description of this portion will be conveyed by a summary of the characteristics of the country between the periods timed by me and taking 3 miles as the rate per hour, which would make the total distance 15 miles. Kokotoni to Mdo.

6 A.M. to 8.30 A.M.—Direction due south.

Lay of land is undulating, low, flat ridges, with hollows.

Soil, on ridge, bright red to chocolate; on slope, stiff clay (1431) C 2

loam; hollow, loamy black, with coral outcrop and traces of sandstone substrata.

Of clove plantations the average height is 30 feet to 35 feet; fine avenue along road; circumference of stems, 1 foot to $1\frac{1}{2}$ feet; very clean; many houses and much ground cultivation; cocoanuts and mango trees; uncleared land; hook grass.

Soil, very red to slightly yellow; very stiff clay.

Then down hollow through watercourse with deep banks.

Soil, very black to grey (sandy); subsoil, stiff black clay.

Beyond, flat country.

Soil, black to grey; outcrop of coral.

Country now well populated; numerous houses and native produce; scattered mango and cocoanut trees, also cloves; much uncleared land.

Soil, rich loamy black, very fibrous from grass roots, clods of earth quite matted; noticed this is freshly-hoed land.

Further on, country well cultivated, frequent clove plantations, trees here with stems 6 inches to 1 foot in circumference; also rice and cassava fields; numerous houses, surrounded with thick groves of cocoanuts, mangos, and also jack trees; thick banana clumps; clove trees (scattered), also frequent round houses; areca palms.

Lay of land, flat.

Soil, of deep red to darker chocolate loam.

This luxuriant appearance continues; where no clove plantations, mango and cocoanut trees are growing in thick clumps, and grow with houses nestling among them, surrounded by bananas, &c.

As I proceed, clove plantations become more frequent, in some cases very unweeded and neglected, but trees generally healthy and vigorous.

Amongst other clove plantations I would particularise:—

“Dongé,” the property of the Sultan, and one of the finest I have yet seen; very clean, and trees most luxuriant, in many places quite shading the ground; foliage a deep green. Trees planted along the road form quite an imposing avenue.

Planting distance about 20 feet by 30 feet; in fact, on left side of the road the lines appear closer than they really are, owing to the very luxuriant and robust appearance of the trees, the branches of opposite rows often intermingling.

Average height, 30 feet to 35 feet; lines most regular; no vacancies; very few cocoanuts amongst the trees; plantation in very fair order, and extensive.

Lay of land, gently sloping to east.

Soil, a deep red to darker chocolate clay loam.

Beyond, open country, chiefly uncleared, but the leading characteristics of this district may be given as follows:—

Where no regular clove plantations exist the land is a mixture of scattered cloves, young and old, with numerous cocoanut and mango trees with other fruit trees, and in some places there appear to be as many other trees as cloves; this broken by

occasional patches of cassava, and also a good deal of uncultivated land.

Cocoanuts, I notice, when in groves, are healthy enough, but, when scattered, very poor and straggly looking.

8.30 to 10 A.M.—Passing occasional large substantial stone-built Arab residences.

Country here very fertile. Mango trees are growing everywhere, as a rule very close and thickly planted, and my route now is through almost continuous clove trees, for, apart from regular plantations, these trees, except in very rare instances, are scattered all over the country on every side.

Close by here I passed through a large clove plantation, of which many of the trees looked unhealthy—small yellow foliage, lanky appearance, and in some cases top branches without leaves; further on, noticed two or three dying trees, but this is a very small proportion; the causes of the above are referred to at p. 10.

Beyond (in same plantation) appearance soon improved greatly, and some of the trees were the finest yet seen.

I measured one tree—6 feet in circumference, 6 inches above ground, but average size, 1, 1½, 2, 3, and 4 feet; the trees generally have branching stems, often as many as four. Plantation fairly clean.

Lay of land, gently undulating ridge.

Soil, a grey to black very tenacious loam.

In next hollow crossed small watercourse bridged.

Soil of river bank, stiff grey loam. Then up other side, slight ridge or hill.

Soil, brown with much coral outcrop.

On top of ridge, a dark red to chocolate.

Open country; rice cultivation on sides of ridge, which slopes gently down towards the west, where it opens out to large flat plain covered thickly with groves of cocoanut trees, which, intermingled with green rice fields, extend as far as the eye can see; a rich and beautifully fertile country.

Proceeding along ridge through flat richly cultivated country, clove trees, clove plantations, numerous orange trees, fields of Indian corn and rice, cassava, frequent houses surrounded by gardens, thick clumps of bananas, areca palms, some sugar-cane patches, numerous mangos and thick clumps of cocoanuts.

Fertile appearance of country much marred by large areas of uncleared land; and I more especially remarked an extensive low-lying plain, which I crossed at 9.15, which, with the exception of a few scattered fields of cassava, and some patches of rice in a swampy hollow in the centre, was totally uncultivated and thickly grown with tall grass, 3 feet to 4 feet high.

Soil is a stiff grey loam.

Plain surrounded on all sides by thick groves of cocoanut and mango trees.

Crossed small river at southern end (third).

Soil round river, very tenacious black loam.

(1431)

C 3

covered with cloves, bananas, cocoanuts, &c. Cloves continue on both sides, travelling down a fine wide avenue and passing through Kignamanzi. Clove plantation (Sultan's), an extensive property with large stone house; walls painted in black and white checks.

Clove trees here, circumference round single stems, 1 foot to $1\frac{1}{2}$ feet; younger trees, 6 inches.

Plantation situated on ridge; open cultivation (cassava) interspersed with clove trees.

Then south-east through thick banana, cocoanut, and mango clumps. Many houses with numerous mango and cocoanut trees all round.

Country very flat and now more open. A great deal of uncleared land; cocoanuts chief cultivation here and very thickly planted, with banana clumps and scattered small fields of cassava.

Now proceeding east, road winding very much. Avenue of small clove trees, otherwise cultivation all cocoanuts and bananas; houses numerous.

Soil, darker chocolate.

Low ridge on ahead; some scattered clove trees on left side; land uncleared; direction still east.

Then clove plantation on left; on right open and much uncleared land.

Clove plantation on left now continues; very regular and fine luxuriant trees; some patches of pine apples.

Soil, varying from chocolate to red, and stiff yellow loam, often to depth of 2 feet and 3 feet.

"Moirá" river flows through bottom of valley; more rapid current than other rivers; a new bridge being built of coral stone.

Opposite side, low hill.

Opposite side, soil, near river, very stiff clay; half-way up hill, stiff chocolate to yellow loam.

At first mixed cultivation, with much uncleared land and scattered cocoanut and mango trees; and from hill top fine view over lately traversed hill and valley, appearing a dense grove of cocoanuts and bananas.

Kisimbani
Plantation.

Then into a very fine plantation, named Kisimbani, the property of the Sultan, and the trees, many of them survivors of the hurricane of 1872, presented really a magnificent appearance, being fully 30 feet to 40 feet high, and completely shading the ground. This plantation is on the top of the ridge, and is very extensive.

Soil, a deep red chocolate loam.

On top of ridge struck to the south, clove trees all around; appearance of trees most luxuriant, bushy and vigorous and extremely regular; here and there noticed dying trees, but percentage very small. Circumference, many trees quite 4 feet. A great deal of hook grass; this hook grass undoubtedly affects the trees injuriously, and the small hoes in use cannot touch the roots; this and the irregular weedings all help to encourage the

spread of this pest. This, one of the largest plantations yet seen, is also the biggest area covered with hook grass that I have yet noticed.

Then struck east. On left, undulating ridges covered as far as the eye can see with clove trees; on right the same. Further on, trees not in any way so fine or vigorous, and this evidently due to hook grass.

This plantation covers the entire ridge.

Kisimbani to Dunga.

Other side of ridge, scattered and irregularly planted, young clove trees (or else many vacancies), ground in many places covered with "hook" grass, open country, much uncleared land grown up with "hook" and bush, scattered fields of cassava, detached clumps of cocoanuts and bananas.

In front, another low hill, and, lying between, a low, rich, Machone. fertile valley, named Machone, the property of the Sultan; a good deal of rice cultivation on both sides of small stream, some small fields of sugar-cane and a thick background of cocoanuts and banana clumps.

Soil, half way up ridge a deeper loam. On top of hill extensive plantation, named "Ketumba" (property of Benoni-bin-Seyyid Sultan). Mixed cultivation, cloves, sugar cane, bananas, cocoanuts, mango, orange, and fruit trees. Clove trees mostly young and well supplied. Fields of sugar cane very fine.

Small sugar factory here, worked by water-power obtained from well.

Lay of land, flat.

Soil, on top of hill, deep loam, with white sandstone; further on, a greyer loam. In sugar cane, a rich, stiff, black loam.

Then struck south through fine, rich, flat country, and, excepting the usual areas of uncleared land, fairly well cultivated. Especially noticed some extensive and thickly-planted groves of cocoanuts. Houses fairly numerous. Many of the shambas mixed and combined cultivation of thickly and densely planted mangos, cocoanuts, cloves, jack trees, bananas, &c., with some scattered open cultivation. Distant low hills with clove trees.

Soil, a stiff chocolate loam, very rich.

And after passing through one of the largest coconut plantations seen yet—trees irregularly planted 15 feet, 18 feet, 20 feet, 25 feet, 30 feet apart.

Soil, here deep red chocolate loam, merged upon an extensive uncultivated plain and very level.

The appearance of the large uncleared plain was singular; there were no large trees, but here and there scattered clumps of low bush, and the whole of the ground covered with short grass, mixed with ranker, coarser grass and bracken-fern; but the striking feature was the extraordinary outcrop of coral rock everywhere.

Soil, black to brown, somewhat peaty.

Direction due east, and ahead a low hilly ridge, which is Dunga, distant from Mdo about $7\frac{1}{2}$ miles to 8 miles, but, as the crow flies, much closer, as the road winds greatly.

Dunga.

The changed appearance of the country here is most marked.

Dunga may be best described as a low flat hill, the greater portion of which is under cultivation, the low-lying land on both sides consisting of the same extraordinary thick outcrop of coral rock, with thick bush and open grass spaces. Beyond, to the eastward, extends yet another low hill, also visited by me, and to which further reference will be made.

Dunga plantation, which possesses a large, handsome stone house, covers the greater extent of the low hill on which it is situated, and consists of mixed cultivation—cocoanuts, mangos, cloves, cassava, chillies, &c. Is now the property of the Sultan's Secretary, Mahomed-bin-Saif, to whom I am indebted for much courteous attention, who bought it from his wife, the daughter of the Sultan of the Wahadinu people.

I especially noticed some very fine large clove trees, one of which, on measurement, proved to be $5\frac{1}{2}$ feet in circumference at the base, and was stated to be from 60 years to 70 years old.

Soil, sandy grey loam, alternating with richer chocolate soil.

Water supply, from wells, and appears abundant.

On inquiring from head overseer the reason of so much uncleared land on the estate, he informed me it was from want of slaves, of which there were only 60, and that double the number was required to keep the estate in anything like proper order.

I would call especial attention to this, as this estate may be taken as a typical example of others, the proprietor being one of the notable Arabs of the island; and yet, notwithstanding this complaint as to shortness of labour, clove cultivation was being extended, for I noticed a fairly large nursery of clove plants.

The Wahadinu Country.

Left at 7 A.M., accompanied by overseer, to inspect the barren country lying eastward of Dunga.

In descending ridge, noticed small patches of chillies round the houses. On reaching valley, coral outcrop begins at once, and the sudden cessation of cultivation is very striking.

Visited small chillie shamba in low hollow close by. Coral outcrop everywhere black-coloured. Area of shamba, $\frac{1}{4}$ acre, surrounded by low coral-stone wall to keep out wild pigs, very numerous here. Chillie plants about $1\frac{1}{2}$ feet to 2 feet high. A few lanky cocoanuts and zamberow trees.

Soil, very black and fibrous.

Lay of land, undulating.

Then, leaving low valley, struck south through grass and bush—outcrop of coral increasing—then down low slope into extensive plain, extending in every direction. Here coral rock not so plentiful, grass short, no bush, except a few stunted clumps here and there.

Soil, brown and inferior.

Proceeding due east for probably 2 miles, then changed to north-east. Bush now much thicker, and in some places 8 feet high. Coral also increases greatly, large masses of it being frequent, and the soil has in places almost the appearance of gravel from the numerous minute portions of coral stone.

Chillie Plantation of Wahadinu People.

At 8.30 A.M. came upon small shamba of above; the ground simply covered with a jagged coral outcrop, here blanched white from exposure; in the bush it is generally black or dark coloured.

Chillies, 3 feet to 4 feet high, bushy and luxuriant; tobacco, Cultivation. very small leaves, and pinkish-white flowers; pumpkins and tomatoes.

Soil very black, and extremely friable.

Beyond, bush and alternate open grass spaces; scattered coral.

Soil here yellow to red loam, and this continues until next low hill is reached.

The plain just traversed is named "Mangwa Kitowoni."

Once on rising ground soil improves greatly, consisting of a rich red to dark chocolate loam, and cultivation is once more conspicuous; thick clumps of cocoanut trees, scattered mangos, and fields of rice and Indian corn; also very fine luxuriant chillies growing, both round houses, now fairly numerous, and also cultivated in fields, these yielding the large red and yellow pods consumed locally, and not so pungent as the small "bird's-eye" chillies grown in the "Wangwa."

Proceeding south down the centre of low hill.

Lay of land, flat.

Soil continues a very rich red to dark chocolate loam; clayey.

Passing a good many scattered houses surrounded by cultivation, bananas, &c., some cloves, mangos, cocoanut clumps, and jack trees, but cultivated area comparatively small; many cocoanut and mango trees now growing in uncultivated land quite overgrown; a good deal of chillie cultivation. Cultivation gradually decreases, and gradually outcrop of coral becomes more frequent; on the outskirts of the cultivated area is an enormous coral rock, fully 80 feet to 100 feet high, of large dimensions, and very precipitous rock called "Limani."

Beyond this, uncultivated land with coral outcrop extends southwards, all grass and bush

Soil, dark-coloured loam, friable, and mixed with coral.

Then retraced steps, going back west, passing through a large prosperous-looking village of the Wahadinu people, surrounded by large mango trees, cocoanut, and banana clumps.

Noticed leaves of tobacco tied in hands or bunches, and hung to dry upon the outside walls of houses; largest leaves about 8 inches by $4\frac{1}{2}$ inches; 6-veined; colour light yellow, and appears mild.

Chillies seemed to thrive most luxuriantly in black soil, with huge coral rocks and stones cropping up everywhere.

Fields (of cassava especially) are protected against wild pigs by low coral-stone walls.

Again descended into valley, but by another path; thick bush and coral outcrop everywhere, this last having the appearance of grey lava. In some places the coral rock so completely covers the ground that you absolutely cannot distinguish the nature of the soil, yet all round is thick bush.

Soil, black and very friable.

I would also mention here that natives use specially-made coir sandals to traverse this portion of the island, these sandals being also in use in the Comoro Islands.

Then on left, about centre of valley, noticed another small Wahadinu clearing in the bush; the coral rock here, also, as in the case of the first clearing, being bleached white from exposure. Size of clearing about half an acre.

Tobacco was the chief cultivation here. The plants are not topped, but allowed to flower. Height, 4 feet to 5 feet; flowers, pinky-white; size of leaves, 5 inches to 10 inches long by 5 inches to $4\frac{1}{2}$ inches wide; leaves narrow and lance-shaped.

Soil, between coral interstices, black friable loam.

Where bush has been burnt bracken-fern springs up. Bush now ends, and come out upon open grass plain.

Soil, very dark-coloured red to black; less coral. (The thicker the coral outcrop the more bush.) The soil appears good; very friable and porous; scattered bush clumps.

Coral everywhere, with larger masses at intervals; gradually becomes less.

Short grass, turfy; a good deal of bracken-fern.

Soil inferior, black, and somewhat peaty.

Then thick bush and increased coral outcrop.

Soil redder in appearance; continuous bush, and coral plentiful.

Back up ridge into Dunga plantation again.

Left Wahadinu village at 9.30 A.M., and back at 12 noon, a distance of $2\frac{1}{2}$ hours between the ridges.

Dunga to Zanzibar.

Left at 7 A.M. for Zanzibar, proceeding south down centre of Dunga Hill. Low valley; all bush on west side, called

"Mzingam," apparently a continuation of the open uncultivated plain crossed coming to Dunga from "Mdo"; beyond, low hill called "Makorogo," distant 2 hours from Dunga.

After leaving Dunga plantation the country is all uncultivated, chiefly grown up with grass 2 feet in height, and is named "Wangwa a Dunga."

Lay of land, flat; coral outcrop in places.

Soil appears good, a dark consistent brown loam.

Then beyond this—still continuing along Dunga ridge—scattered areas of cultivated land at long intervals, but these are very luxuriant; cocoanut, mangos, jacks, and very fine cassava. The shambas are always either walled or fenced in, as a guard against wild pigs. No clove cultivation, only scattered trees. After leaving Dunga plantation, grass and high thick bush in uncleared land.

Soil, chocolate loam.

On western side the low valley still continues, extending as far as "Makorogo." Hill, all bush, quite uncultivated.

Further on, cultivation very small and far between.

Soil, a lighter brown and more outcrop of coral, but there are some fine young mango trees growing here and there in uncleared land, as evidence of depth of soil.

Then large extent of uncleared land, in former years all under "Mtama" cultivation.

Continuing through this, passing walls of coral-stone inclosing abandoned fields lying on either side of path.

Lay of land, flat.

Soil, rich black to grey loam.

All this land formerly cultivated by Sultan of Wahadinu people, Muini Koo Wadunga.

Dunga Hill gradually lessens and slopes gently down to surrounding country, and now left this, striking west and crossing uncultivated valley between—here all grass—entered once more into a more cultivated and richer area.

District named "Jumboi," cultivation luxuriant and of considerable extent. Extensive groves of thickly-planted cocoanut trees, numerous jack and orange trees, areca palms, banana clumps, and ground cultivation, amongst which noticed some ground-nut.

Now proceeding south-west; then struck off the main path to visit "Makorogo."

Lay of land, flat.

Cultivation, chiefly cocoanuts, which are very thickly planted, and intermingled are many mango trees, some of these last really immense trees; also numerous jacks, oranges, other fruit trees. ground cultivation, patches of ground-nuts, both varieties.

"Mjugu mawe," small white round nuts, chiefly an article of food, being boiled and eaten.

"Mjugu Nyassi," the ground-nut of commerce.

This is a rich fertile country. Slave and other houses are fairly numerous, surrounded by thick groves of cocoanuts, mangos, jack trees, &c., but, as a rule, the ground is uncleared.

The people readily acknowledge the want of cultivation, but say they have not got sufficient slaves.

Soil, very rich grey to black loam.

9 A.M.—Return to main road, continuing due west.

Lay of land, gently undulating ridges.

Many orange trees, numerous fine mango and jack trees closely planted; in fact, in many places the ground is densely shaded.

Cultivation here presents a totally different aspect, and the soil also varies, and may be described as a grey to black sandy loam.

But beyond, sudden change to red stiff loam; and here are some scattered clove trees, the first observed here; but the chief cultivation is cassava, of which large fields extend on both sides, with a background of cocoanut, mango, and banana clumps.

Water supply is obtained from wells.

At 9.30 A.M. (2½ hours from Dunga) passed through several "wangwa," or uncultivated areas.

Soil, black, but less friable than at Dunga, and much disintegrated coral, coral outcrop, grass.

Then flat country, clumps of cocoanuts, mangos, patches of cassava, but a great deal of uncultivated land.

Lay of land, low flat valley and series of water-pools. A good deal of grass.

Soil, very rich black loam, and high bush and grass.

Diverged from the direct Zanzibar road to visit "Bonde la Mzungu," passing on the way "Moira," a large and much-neglected plantation of mixed cultivation (property of relative to Sultan). The whole place simply overgrown, and many clove trees almost hidden by bush and creepers, and the place evidently not touched for months. A good many cocoanut trees very irregularly planted, and some mangos.

Soil, red to chocolate.

Subsoil, yellow clay.

Soil, further on, intensely black and clayey.

Then emerged upon low open valley, very swampy. This is "Bonde la Mzungu."

The River Moira, here about 5 feet wide, and shallow, flows in at the upper end of valley, disappearing suddenly underground through a cavity in a coral rock situated in the middle of the valley. The mouth of this cavity is comparatively small, and a great portion of the water spreads out round the rock, forming a swamp, which, in the rainy season, attains large proportions. At present the swamp was grown up with high coarse grass, and there were also some patches of sugar-cane.

The river can be heard gurgling and rushing underground, the fall evidently being very steep and rapid, and it only reappears on the sea beach miles away.

Soil of valley, very rich black clay.

Other side of river:—

Lay of land, very flat.

Cultivation, scattered mangos and clumps of cocoanuts; small ground cultivation; cassava and sweet potatoes on raised beds, occasional clove plantations, one named "kikokani" (from "kikoka," creeping grass) chiefly consisted of young trees. A great deal of uncleared land.

Soil, brown loam, clayey.

10.30 A.M. Twoni district. A good deal of ground-nut cultivation; thick groves of cocoanuts.

Now fine road, 20 feet wide, planted on sides with young clove trees.

Cultivation scattered. Clove trees comparatively few, and interspersed amongst cocoanuts and bananas. Much uncleared land.

Soil, brown to black loam, also grey.

Subsoil, yellow clay.

11 A.M. (1 hour from Zanzibar). With the exception of a low valley, named "Bonde la Moina Kirokwe," through which the River Moina Kirokwe flows. This river very deep in the wet season. The country consists of an open flat plain, with white to grey sand. Very heavy-going in places.

The cultivation consists almost entirely of cocoanuts growing thickly everywhere, the ground below utterly uncultivated, with the exception of that round houses where are found banana clumps, Pemba cocoanuts, &c. Very few clove trees, chiefly planted round houses, and as avenues. As one approaches the town houses become larger and numerous.

Though deep white to grey sand forms the chief characteristic of the soil here, the subsoil must make amends for the poverty of the upper layer, for I was, putting on one side the numerous coconut trees, especially struck with the magnificent appearance of the mango trees noticed here, some of which were truly enormous, and these remarks apply equally to the jack trees, known deep feeders.

Finally reached the outskirts of the town of Zanzibar at 12 noon on March 28, 1892, thus completing my tour of inspection of the island.

No. 3.—SUMMARY and Possible Development.

The agricultural possibilities of Zanzibar appear to be so little known that I have purposely enlarged and dwelt upon the chief characteristics of the soil and cultivation. As Sir Gerald Portal very truly says:—

"With a fertile soil, a tropical climate, and a large annual rainfall, there should be no difficulty in finding crops which should yield a profit."

I shall now endeavour to show that of these, not only are there many, but that the present products now growing are capable of very great development.

Comparison
between
Zanzibar and
the West
Indies.

In the earlier portion of this report I showed a comparison of temperature between Zanzibar and Kingston (Jamaica). I now quote an interesting extract of the temperature and rainfall of the Island of Trinidad, the great cocoa-producing island of the West Indies, for which I am indebted to an interesting article reviewing a book on cocoa cultivation by a Mr. Hart, contained in the "Ceylon Observer" of June 9, 1892:—

Temperature and Rainfall.	Degrees.	Inches.
The temperature, &c., record of the Trinidad Royal Botanic Gardens—		
Mean of 4 years ending 1890	78·6	..
Minimum	69·4	..
Maximum	86·8	..
Mean annual humidity	79·0	..
The 4 years mean rainfall was	..	71·55
The mean for 35 years was	..	64·49

Thus it will be seen that a very marked similarity of rainfall, temperature, and also soil—

"... the land is flat, the soil red, as in parts of Devonshire, and there is a subsoil of marl"—Letters from Jamaica, T. A., December, 1891—

exists between Zanzibar and the prosperous and productive islands of the West Indies, and there can be no doubt, as indeed is already evidenced by the interesting collection of plants made by Sir John Kirk at Mbwani, that the products cultivated there, excepting those grown at higher elevations, can be successfully introduced here also.

The labour
question.

Indeed, this similarity may be carried even further, for the difficulties which have been successfully met and overcome there, viz., abolition of slavery and a foreign labour supply, are questions which Zanzibar is facing at the present moment.

Certainly this labour question is a most important one, and forms the basis on which future agricultural development must necessarily depend; and with the island mainly depending, as at present, upon one product like the clove tree, which especially requires a large labour supply, this becomes a most urgent and important matter.

Throughout the island I heard one universal complaint as to the want of labour, and the second portion of this report shows the very large area of land at present uncultivated.

For this a remedy is easily found in the importation of Indian labour.

If places so distant from India as the West Indies are enabled to thoroughly depend upon their foreign labour supply, there can be no question of doubt that Zanzibar, so far more advantageously situated, need fear any apprehension on this score, and Mauritius can be pointed to as a case in point.

Again, the introduction of a steady and industrious race

would prove of the highest advantage, apart from their usefulness as a reliable labour supply, and their presence would also have a stimulating effect upon both the Swahili and freed slave, who alone could not be depended upon.

So much for the labour question, but the real difficulty lies elsewhere. Arab landowners.

Will the Arabs, the principal landowners of Zanzibar, now that slavery is doomed, face the altered state of affairs?

Abler judges than myself reply distinctly in the negative, and it is certainly a fact that many of the larger estates are heavily encumbered, and entirely in the hands of Indian traders and merchants.

To bring about a better state of affairs, and to thoroughly develop the resources of Zanzibar, European enterprise is undoubtedly the factor required, and the sooner that this can be more largely attracted, the quicker will development commence. European enterprise necessary

The Government can do much to bring this about by making better known the fertility of the country, and its adaptability for the cultivation of many remunerative products, and I would also suggest the extension of the present system of roads throughout the island. Means of communication and coast traffic.

The encouragement of cattle as draught animals for cart traffic would conduce very greatly to encourage and extend cultivation, for at present the only means of sending produce to the coast is on porters' heads.

In discussing the question of products adapted to the island, and of which the cultivation should prove remunerative, I shall first take up those already growing. Suitable products.

The Clove Tree.

It has been pointed out that agriculture in Zanzibar and Pemba, apart from other considerations, is at present in a somewhat precarious position, depending as it does chiefly on one article of produce, admittedly not a necessity of life, and also liable, since the disastrous experience of 1872, to destruction by any cyclone.

This is certainly true, and there can be no question that the present state of affairs is unsatisfactory, and should be remedied.

But on the other side, due consideration should be given—

1. That the soil and climate of Zanzibar and Pemba are eminently adapted for the cultivation of this product.

2. That the large clove plantations on the island consist chiefly of trees dating since the year 1872, and that for many years to come cloves must continue to be the principal and most important export.

Bearing this in mind, it becomes a very essential question whether, this being so, the present very low prices now ruling cannot be improved; and next, whether by due precaution all possible danger from cyclones could not very greatly be neutral-

lised? That these are important matters there can be no two opinions.

To take the former question first.

It is acknowledged that the produce of Zanzibar and Pemba differ, to the advantage of the first, Pemba cloves absorbing a considerable amount of moisture in their journey to Zanzibar in the unsuitable and ill-protected native dhows in which they are generally brought across; but apart from this, there is unfortunately, no doubt, that Zanzibar cloves at present occupy the lowest position in the London market. Adulteration with stems may help towards this, but the low price of the dried buds themselves must be due to other causes.

The value of cloves depends on their plumpness, their brightness of tint, and their yield in essential oil. Now, in making comparison with other spice-producing islands, it is found that the system of curing wholly differs, and that Zanzibar and Pemba, with the sole exception of Sumatra, stand alone in the practice of drying the buds immediately in direct sunshine.

I also annex some notes on the curing of cloves in the Island of Amboyna, and also in Penang, for which I am chiefly indebted to Messrs. A. M. and J. Ferguson's "All about Spices."

Clove Cultivation in Amboyna (Moluccas).

"The reaping of the clove harvest is perfectly simple. When the fruit begins to grow red the reaping is begun. The ground underneath the tree is clean swept. The nearest clusters are taken off with the hand, and the more distant with the assistance of crooked sticks. Great care is necessary that the trees in this operation should not be rudely handled, as an injury offered to them in this way would prevent them bearing for years. The curing of the cloves consists in placing them for some days on hurdles where they are smoked by a slow wood fire, which gives them a brown colour, and afterwards drying them in the sun, where they turn black as we see them in the article of commerce. In some places they are scalded in hot water before being smoked; but this practice is not common. Such cloves as casually fall on the ground and are picked up in small quantities, the cultivators do not think it worth while to subject to the process of smoking, and they are merely dried in the sun; they are discoverable by their shrivelled appearance, and are of inferior value. The period of harvest is from October to December."

Clove Cultivation in Penang (Straits Settlements).

"Penang cloves' have the reputation, like the nutmegs, to be best in the market, commanding a higher price than Amboyna (Moluccas), and Zanzibar cloves. The bud gatherings last a few days only. . . . The buds after being gathered are spread

on large sieves or mats of loose texture, and dried under the shade of trees or in sheds with palm-leaf covered roofs, and are then ready for the market. To dry them in the sun causes them to dry black and shrivelled, and to evaporate much of their strength. A properly dried clove is of a light brown or tan colour."

It will be noted that the practice of direct sun-drying, as carried on in Zanzibar and Pemba, is strongly disapproved in both Penang and the Moluccas.

Shelter trees have already been referred to at page 4, as already practised in Sumatra, and from personal experience I can bear out the great advantages and benefits of wind belts, and would very strongly urge and recommend their introduction here. A few rows of wind-resisting trees, planted along the boundaries and on ridges in clove plantations, would prove a very great protection.

With the *Cerbera Mangha* I am unacquainted, but the *Casuarina* I know well; there is also another most useful tree, the *Grevillia robusta* (the silver oak), which is very highly thought of in India, as apart from its wind-resisting power, it is remarkable for greatly enriching the soil by the quantity of leaves it sheds. They are both hardy, vigorous, quick-growing trees, and very easily propagated, the "*grevillia*" especially so.

Shelter Trees on the East and South Coasts.

Whilst on this subject I would suggest that belts, or even plantations of shelter trees, might be established on ridges, and along the east and south coasts of the island, for I consider this an experiment well worth making, and the *Casuarina* thrives well on a sandy soil, and I very greatly regret that my visit to this portion of the island was of so brief a nature.

Planting,
shelter trees
on the east
and south
coasts.

The uncultivated area on those coasts is so large that I think every possible attempt at reclaiming it should be made.

The Cocoanut Palm.

I hardly think that the large area under this cultivation is realised; certainly the natives are ignorant of the valuable nature of this useful tree.

As I have had the honour of showing in separate reports, cocoanuts form the principal source of wealth and revenue on the western coast of India, and the total exports from Travancore alone between 1879-82 of nuts, coir, and copra were valued at 46,25,000 rs., or nearly 500,000*l*.

Now that European firms have had their attention attracted, a great impetus in the trade of the various bye-products of the cocoanut tree may be confidently expected, more especially once roads are opened up, and carts enable more distant shamba owners to dispatch their copra, husks, and nuts to the coast. And it will

naturally follow that as soon as the great value of this tree is better understood, greater care will be taken in its cultivation.

Minor
products.

Of the so-to-speak minor products cultivated, but a brief further reference need be made.

The Areca Palm.

As stated at page 15, I consider this cultivation could be largely extended; as already mentioned, this palm thrives well in a sandy soil, and there are large areas in the island excellently adapted for its cultivation, and I would especially instance the sandy plains surrounding Zanzibar town to the east, and also the large extent of suitable land lying between Chueni and Kokctoni.

The silk-
cotton and
papaw tree.
Fruit trees.
Mango and
jack trees.
Alimentary
plants.

The silk-cotton and papaw tree have already been fully referred to. And the same may be said concerning the foreign and other fruit trees.

Mango and jack trees will be referred to specially elsewhere in connection with the cultivation of new products.

Of alimentary plants I shall only take up the more important, viz., sugar-cane, rice, ground-nuts.

Sugar Cane.

The great displacement of cane by beet sugar, and the very low prices now ruling, renders this a most difficult question to approach, and certainly the present position of sugar-cane producing countries is not sufficiently satisfactory to encourage one to speak very hopefully of the prospects of a revival of this cultivation in the island. But taking into consideration the exceptional geographical position of Zanzibar, I am led to believe that a very satisfactory local trade might be successfully developed with the Africa mainland.

Rice.

I would here again strongly emphasise my remarks concerning a systematic irrigation cultivation of this grain. Rice forms an important article of consumption, and is at present imported. With the facilities which the island possesses for its cultivation a very great deal more might be grown than is at present the case.

Ground Nuts.

These are an important and valuable article of commerce, and, apart from their cultivation on the island itself, a profitable trade might easily be fostered on the mainland, where the grey, loamy soil, so characteristic a feature of the coast lands, offers every requisite required. Ground nuts, I need not add, form one of the principal exports of the eastern districts of the Madras

Presidency; they are already cultivated here in a small degree, and the extension of their cultivation could, I consider, be easily affected, and with highly important results.

Chillies.

I have entered so fully elsewhere into the question of this cultivation that I need add nothing more to what I have already said.

I must, however, again express my regret that my visit to the eastern portion of the island was of too brief a nature to enable me to speak with any exactitude as to the actual position and prospects of the cultivation of this spice.

Pine-apples and Aloes.

These, though actually growing on the island, are not at present utilised in any way, and therefore may be really described as new products, and will accordingly be referred to under that head.

New Products adapted for Cultivation in Zanzibar.

The marked similarity between Zanzibar and the more important West Indian islands—notably Trinidad and Jamaica—in the matter of soil, temperature, and rainfall that I have called attention to, is undoubtedly a very important point, for with this similarity of climate it naturally follows that the cultivation of the principal tropical products can, with certainty of success, be introduced into the country; and it will be seen that the island contains very great possibilities, only requiring development to be realised.

West Indian
products well
adapted for
Zanzibar

It is not my province, in a report such as this—already very exhaustive—to do more than draw attention to the capabilities of Zanzibar, and point out the manner in which (to the best of my judgment) they can be most successfully developed, and further measures can then be adopted, should such be considered advisable, to carry out the various suggestions contained in this report.

Amongst the more important of the products of which the cultivation in Zanzibar should prove remunerative, I would especially call attention to the following:—

Suitable
products.

The cocoa tree, nutmeg tree, cinnamon, pimento, pepper vine, ginger, fibres.

There are others, but those mentioned are the more important.

The Cocoa Tree (Theobroma Cacao).

This especially is a product that I consider excellently adapted for the island. I have already called attention to the climate of
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Trinidad, the great West Indian cocoa-producing island (annual value of exports, 400,000*L.*), and I quote below an interesting extract from the book by Mr. Hart (of the Botanical Gardens, Trinidad) on cocoa cultivation, already referred to:—

“In my experience humidity is a much more important feature in plant growth than temperature alone, and no plant suffers more than cocoa at periods when the air is deficient in moisture. Even in the driest weather in Trinidad the hygrometer shows that, during the later portion of the night and early morning, the moisture in the air closely approaches to saturation, and it is only the readings of the periods between 10 A.M. and 4 P.M. which reduces the record to the average of 78. . . .

“Countries in which the annual rainfall is greater than in Trinidad may not possess the same humidity, and therefore are not so suitable for the cultivation of our plant, and countries which, on the other hand, exhibit a smaller annual rainfall, may be more suitable for cocoa cultivation owing to the presence of the requisite amount of humidity; for in no country is the humidity fully determined by or coincident with the rainfall, as it is often influenced by many other outside conditions. On the south side of the Island of Jamaica, for instance, although a similar temperature prevails as in Trinidad, the humidity shows a marked divergence from our records, and in that fact shows plainly that this district is utterly unsuited to the growth of cocoa. Though there are other situations in that island where the requisite humidity can be obtained, and where the tree thrives exceedingly well and produces large crops and fruits.”

As the subject is an important one, I also annex a table of comparisons of temperature, humidity, and rainfall between Zanzibar, Trinidad, and Colombo—Ceylon cocoa at present realising the highest prices in the London market.

TABLE of Comparisons.

Country.	Temperature.		Temperature, Mean.	Humidity.	Rainfall.	Years of Observation.
	Mean Maximum.	Mean Minimum.				
	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	
Zanzibar ...	83·7	76·4	80·3	80·3	61·01	5
Trinidad ...	86·8	69·4	78·6	79·0	71·55	4
Colombo ...	...	...	81·2	...	87·74	14-15

N.B.—Of Colombo I am only able to quote the mean temperature and rainfall.

Mode of
cultivation.

I quote below some interesting extracts from a practical paper by a well-known Ceylon planter*—

“Soil, the very best land that can be got should be secured for cocoa; the plant is a deep feeder, and to thrive well must have a

* Mr. W. Jardine.

good subsoil; dark, friable, chocolate soil of great depth is the best, but such is comparatively rare. Light soil, with a good deep subsoil, is to be preferred to one with a rich surface soil, but hard impenetrable subsoil. Very steep land is to be avoided, but moderately steep suits very well; rich flats are the best."

Shading for the first four years or five years is necessary, and for this purpose many trees are found suitable, for, although heavy shading is not required once the plant is well established, it has been found that light flickering shade is very beneficial, and amongst other trees may be mentioned the *Grevillia robusta*; the tree known in Trinidad as "Madre de Cocoa"; *Ficus glomerata*; the *Albizia stipulata* (used in Java). But for first shading nothing can equal bananas.

"The bananas used for shade is usually planted intermediate between the permanent rows of cocoa. If cocoa is at 15 feet, then banana $7\frac{1}{2}$ feet, and so on."—(Mr. Hart.)

I will conclude this portion by quoting an extract from a lecture delivered by Mr. D. Morris, Assistant-Director at Kew, in the latter part of 1891:—

"I now come to the cocoa or chocolate industry. Some years ago we thought the chocolate industry had almost died out in Jamaica. It had been so neglected that except in some few places no cocoa trees were left. Then the endeavour was made to revive the industry. There is not the slightest difficulty in establishing a cocoa estate; you already have your banana shading; all that is left to do is to raise the plants and put them under the shade of the bananas. The cocoa trees only require to be carefully planted and pruned, all the shoots removed, and the trees encouraged to send out their bearing branches so that the pods borne on the stem of the plant may have plenty of space, light, and air."—"Tropical Agriculturist," August, 1891.)

The above applies equally well to Zanzibar; here also are bananas plentiful, and the fertile areas extending, especially through the centre of the island, are, in my opinion, excellently adapted for the cultivation of this valuable tree. The rows between clove trees might also, if considered advisable, be planted with cocoa, and the clove trees eventually cut down once it had been proved conclusively that the former would prove a remunerative cultivation, and thus clove cultivation more equalised with other products.

I shall conclude my reference to cocoa by a statement of—

Probable annual yield, third year, 1 cwt. per acre; fourth year, 3 cwt. per acre; and fifth year, 5 cwt. per acre.

"With trees planted 12 feet by 12 feet, 10 pods per tree yields 1 cwt., and as there are two crops in a year, only 25 pods in each season per tree is required to give 5 cwt. per acre. I cannot ascertain when cocoa is supposed to be in full bearing, but opinions seem to point to 10 years, and a yield of 6 cwt."—(W. Jardine.)

Cocoa seeds soon lose their vitality, and it would be necessary to introduce the cultivation either by means of young plants
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brought over in Wardian cases, or else, as suggested by me in a report to the court of directors of the Imperial British East Africa Company, "the pods might be carried as far as possible and then broken, and the seeds placed to germinate amongst refuse coir, and on arrival immediately planted out."

The seeds and plants should be procured from Ceylon: first, from its proximity; second, from the higher prices it commands.

COMPARATIVE Prices per Cwt.

		1891.			1890.			1889.		1888.		1887.			
		<i>s.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>		
Ceylon ...	...	119	to	125	0	95	to	105	0	86	to	96	90	to	100
Guayaquil, Arribo	...	90		97	6	80		85	0	75		80	70		78
Trinidad ...	...	66		70	0	65		69	0	65		70	70		75
Grenada ...	...	59		63	0	60		63	6	59		64	60		69

(From Messrs. Lewis and Noyes' August Report, 1891.)

The Nutmeg Tree (Myristica moschata).

This is another product which should prove a valuable accession to the agricultural resources of Zanzibar, the soil of the island being, as I shall proceed to show, extremely suitable for its cultivation.

The nutmeg has of late attracted considerable attention, but the comparatively long interval that must elapse before returns can be expected—7 years to 9 years—must always tend to restrict its cultivation and maintain present high prices.

Suitable soil.

"A strong, rich, and rather moist loam is the soil most favourable, when planted on a sandy soil they are not nearly so productive."—(Porter's "Tropical Agriculturist.")

"The soil throughout the plantations generally is a red mould with stony fragments or pebbles frequently intermixed with it, the surface of it in the forest alluvial and low lands being of a chocolate colour varying in depth from 3 inches to 10 inches or 12 inches."—(Report on the "Cultivation of Spices in Bencoolen, Sumatra.")

But I would especially call attention to the following extracts taken from a very practical paper on "Nutmeg Cultivation in the Straits Settlements," by Thomas Oxley, Esq., A.B., and published in the "Tropical Agriculturist," December, 1891:—

"The tree thrives not in white or sandy soils, but loveth the deep red and friable soils formed by the decomposition of granite rocks and tinged with iron, and the deeper this tinge the better. I am therefore inclined to think that iron in the soil is almost necessary for the full development of the plant. If under the before-mentioned soil there be a rubble of iron-stone at 4 feet or 5 feet from the surface (a very common formation in Singapore) forming a natural drainage, the planter has obtained all that he

can desire in the ground, and needs only patience and perseverance to insure success."

"If a plantation be attended to from the commencement, the planter will undoubtedly obtain an average of 10 lbs. of spice from each tree from the fifteenth year. This at an average price of 2s. 6d. per lb. is 1l. 5s. per annum. He can have about 70 such trees to an acre, so that there is scarcely any better or more remunerative cultivation."

The Cinnamon Tree (Cinnamomum zeylanicum).

This is a tree well adapted for cultivation in the sandy soil, a frequent characteristic of the island, though present prices are not encouraging. The following information will prove interesting:—

"A sandy loam mixed with decayed vegetable matter is the soil in which it flourishes best. Shelter appears to contribute to its luxuriance, since it grows with unusual vigour near houses. . . . This tree is now cultivated to a large extent in Ceylon. . . . One of the largest gardens under this culture, called Maradan, is close to Colombo; the surface of this land is a pure white sand under which is a stratum of rich mould."—(Porter.)

"The quality of the soil is a most important feature in the cultivation of cinnamon: a dry sandy soil, which would be inimical to the successful growth of most trees, being an essential condition of success in this case. Not only is the general growth of the tree beneficially influenced by a silicious soil, but the quality and early maturity of the bark produced under these conditions is superior to that of trees grown in hard, stiff, or wet soil. Grown under favourable conditions, the trees can be made to yield their first product in 5 years, but in wet or heavy soils, or in shaded situations, not only are the trees longer in maturing, but the quality of the bark is never so good."—"Cultural Industries for Queensland." "Cinnamon Cultivation," Messrs. A. M. and J. Ferguson.)

"Whether a fine spice can be produced in a wetter or colder climate by cultivation remains to be tested by experiment. Till this is done we must continue to believe that the best cinnamon is grown on the poorest sand, where there is an average temperature of 85 degrees, and an average rainfall of an inch to every degree."—"Cinnamon Cultivation in Ceylon," by an experienced planter.)

"In favourable situations shoots attain the height of 5 feet or 6 feet in about 6 years or 7 years, and a healthy bush will then afford two or three shoots fit for cutting and peeling. In a good soil, every second year from four to seven shoots may be cut from one tree; thriving shoots of 4 years' growth are sometimes fit for cutting. As four or five seeds are usually sown in one spot, and in most seasons the greater part germinate, the plants grow in clusters 'not unlike a hazel bush.' If the season is unusually

dry, many of the seeds fail, while the want of moisture is often fatal to the young shoots, so that it is sometimes necessary to plant a piece of ground several times successively. A plantation of cinnamon, even on good ground, cannot be expected to make much return until after the lapse of 8 years or 9 years."—(Porter.)

"Let us take, for example, an estate of 100 acres, the fair average yield of which ought to be a bale (100 lbs.) per acre per annum. The outturn of chips let us take as the half of the quilled cinnamon, and this outturn any experienced planter will tell you is very high. The local price of chips is from 40 rs. to 45 rs. per candy of 5 cwt., or, say roughly, from 7 c. per lb. to 8 c. per lb."—("Planter." "Ceylon Observer," April 21, 1882.)

Pimento (Pimenta officinalis).

Another, if minor, product well adapted for cultivation in Zanzibar, it growing well on all soils suitable to the clove tree; indeed, it will also thrive on comparatively barren soils. It is a native of the West Indies, and particularly plentiful in Jamaica, whose soil presents much similarity to that of Zanzibar:—

"Much of the soil is a stiff red or brown clay."—"Visit to Jamaica," "Tropical Agriculturist," August, 1891.)

It was long supposed that the pimento tree could not be established successfully outside its native habitat, but later experience has disproved this; it is found in Ceylon, where of late years some attention has been paid to its cultivation; it has also been introduced into Queensland, and there is a tree now growing in Mbweni shamba in Zanzibar, probably introduced by Sir John Kirk, the seeds of which could be utilized for its propagation, they being difficult of import, and of a very perishable nature.

Now that the annual large exports of "Pimento walking-sticks" has caused a considerable reduction in the exports of the "Allspice berries," many young shoots being cut down for export when large enough, the cultivation of pimento certainly merits careful attention.

The following extract gives the necessary information:—

Soil.

"The pimento tree is a native of the Western Hemisphere, and is found growing in South America and the West Indies, more particularly in the island of Jamaica, on the northern side of which it flourishes spontaneously in great abundance.

"It is a very handsome tree, rising to about the height of 30 feet. The smooth brown trunk is about 5 inches or 6 inches in diameter, and from this branches spread on all sides. . . . The numerous white blossoms mixing with the dark foliage assist in giving to this tree a beautiful appearance, which is rarely equalled in the vegetable world. It is rich in fragrance, which is diffused far around; the slightest breeze that agitates the branches conveys the grateful odour. Nothing, it is said, can be more delicious than the perfume of the walks in which the

trees are planted, particularly when they are in blossom. The bruised leaf emits a fine aromatic odour nearly as powerful as that of the spice itself.

"This tree flourishes on barren land where nothing else will grow, and though apparently of easy cultivation, is yet mostly confined to certain localities, and a plantation will rarely succeed except in those parts where it has been found in its native state. Buée gives a remarkable instance of the growth of a pimento tree under apparently the most unfavourable circumstances, and in a soil where little else would have grown. 'A pimento tree,' says he, 'which I left growing as a curiosity, and which is from 30 feet to 40 feet, and exceedingly straight, stands on the ridge of a rock which is about 20 feet in circumference, and is near 8 feet above the surface of the ground, and pointed at the top; on this top stands the body of the tree, from the trunk of which the roots, encompassing the whole circumference of the rock, go down to the earth whence the tree receives its nutrition.'"

This M. Buée was the first cultivator of the clove tree in Dominica, and the following extract, as bearing on the subject in hand, is equally interesting:—

"He found that the plant (*i.e.*, the clove) grew with sufficient luxuriance in a sterile soil composed of a yellowish or reddish stiff clay, such as that in which the pimento flourishes, but which for the generality of crops is scarcely fit for cultivation."

"In the formation of a plantation no regular sowing of seeds or planting of shoots is requisite. The mode usually practised in Jamaica is to select a piece of ground in the vicinity of another plantation or in an hitherto uncultivated district where the plant is of spontaneous production. All other species of trees which are growing on the land, except the pimento trees, are then cut down, and left in the places where they fall, to decay and perish there. In the course of a year young pimento plants are found growing on all parts of the land. These, it is supposed, are produced through the agency of birds, which scatter the seeds around. The ground is left untouched during another year, when it is thoroughly cleared, only those plants being left which give evidence of vigour and health. In about seven years from the first clearing of the ground the trees come to maturity.

"The berries are collected soon after the falling of the blossom; if allowed to ripen, they lose their pungency and peculiar aroma, and acquire a less pleasing flavour, somewhat resembling that of the juniper. Care is therefore taken that few, or none, of the berries be allowed to ripen. It is impossible, however, to prevent some of the ripe berries from being mixed up with the rest, but if the proportion of them be great, the value of the commodity is considerably injured.

"When in a proper state for gathering, a person climbing the tree breaks off the small bunches of fruit; these are transferred to other pickers, generally women and children, who take off the berries from the stalks. Usually the man on the tree thus

Forming a
plantation.

Gathering.

furnishes a supply which gives full employment for three pairs of hands. An industrious picker will fill a bag of 70 lbs. in the day.

Curing.

"As soon as the berries are gathered they are laid on cloths spread out on terraced floors under the influence of the sun for about 7 or 8 days. During the first and second days they are often turned, and afterwards, when they begin to dry, frequently winnowed; they are covered with cloths to preserve them from rain and dew, still being exposed to the action of the sun every day, and removed under shelter every evening until sufficiently dry. In about 12 days they usually arrive at this state, which is known by the darkness of their colour and the rattling of their seeds. At this period they have assumed a wrinkled appearance, and are of a very dark brown hue. After being made thus sufficiently dry, without undergoing any other process, they are stowed in bags or casks, and are ready for shipment.

"It is reckoned that they lose a third of their weight in the process of desiccation."

Yield.

"The produce of a pimento plantation is very dependent on the season; at times the crop is extremely abundant, but this rarely occurs above once in 5 years. Edwards states that a single tree, under favourable circumstances, has been known to yield 150 lbs. of the raw grain, or 1 cwt. of the dried spice."—(Porter.)

"The trunk is white because every year the bark strips. Nature seems to have intended that some useful purpose should be served by the bark, but hitherto it has not been made available commercially."—(Simmond's "Tropical Agriculture.")

816 bags pimento, part sold, 2½d. to 2¾d. A lot of two, 2½d. —London Produce Markets, May 18, 1892.

Present prices. Suggested experimental cultivation in east and south coasts.

I have purposely entered at some length concerning the cultivation of this spice, as apart from its similarity to the clove tree in its requirements, it possesses the additional advantage of thriving in comparatively barren and sterile soils, and the possibility suggests itself of its, perhaps, adaptability for some portions of the uncultivated area on the east and southern coasts of Zanzibar.

Pepper (Piper nigrum).

I now come to this important product—important, as I think that the soil of Zanzibar is very suitable, whilst the numerous mango and jack trees, found everywhere, afford every facility for its immediate cultivation, and which, with care, might be largely developed. I annex below some interesting information on:—

1. Quality of soil.

2. Pepper cultivation in Malabar, India, from Messrs. A. M. and J. Ferguson's "Spice Cultivation."

Soil.

"Light sandy soil must be avoided, as pepper likes soil of a retentive nature. The majority of the soil in the Straits is of this nature, being composed principally of disintegrated granite

and ferruginous clay, with a free subsoil, and on top generally a few inches of vegetable mould. Pepper also grows well in well drained swamps composed almost of pure vegetable mould."

I give below the system of cultivation adopted in Malabar, Pepper which is pre-eminently the pepper-producing country of the world:—
Pepper cultivation in Malabar.

"There are two systems prevalent in Malabar, the one by the ordinary cultivator who owns a small area of ground, and the other by 'gentlemen farmers' who own extensive grounds and who can command a capital.

"To begin with the first. A red gravelly soil capable of retaining moisture, with a goodly number of mango and jack trees growing on it, is preferred. The mango tree is reckoned the best for the purpose. A mango tree ought to be at least 20 years old before any pepper vines are put upon it; for it is believed that a younger tree will produce less fruit where there is vine upon it than it otherwise would do. At the commencement of the rainy season, which is the south-west monsoon in Malabar, the soil round the tree is dug, and a small bank, at a cubit distance from the root, is formed to confine water. Then from 8 to 12 shoots of the vine, according to the size of the tree, are laid down within the bank with 3 inches of the vine slanting up against the tree. The shoots are about a cubit long. They are then covered with fine mould and earth. As the vines grow they must be tied up to the tree. In the hot season they require watering. At the commencement of the next rainy season leaves, ashes, dung, &c., must be put near their roots and fresh earth thrown up. The pepper vine begins to bear at 5 years of age. In 4 years more it is in full bearing. An ordinary tree will produce 20 lbs. of pepper, and a good one 30 lbs.

"The second method, *i.e.*, of opening large plantations, is as follows:—A hillside with an eastern aspect and gentle slope is selected. The land is cleared of its jungle about April, and burnt. The ground is then hoed, and steep slopes are converted into terraces, which is very essential to keep the surface-soil from being washed by rain. After a few freshes, just before the regular monsoon begins, pile rice, dhole, and cotton are sown broadcast. About the middle of June set in plaitain trees at a distance of 8 feet apart, and plant erythrina branches at a distance of about 15 feet apart, or, say, at the rate of 200 trees to an acre. Sometimes 300 trees are also planted, but it is believed that pepper vines would not bear well when planted close together. The erythrina branches should be from 6 feet to 12 feet long. During summer these trees must be watered if they have not taken sufficient hold in the soil to take care of themselves. When the monsoon has fully set in, preparations should commence for regular planting of the vine. There are two ways adopted by the planters. Some people take six or seven cuttings, each a cubit in length, and put them in a basket with their upper end sloping towards a tree. The basket is then filled with earth and buried in the ground at the foot of the tree.

Between the middle of October and the beginning of November the earth round the basket is dug, and, as a manure, dry leaves, grass, and cow-dung are put round the vines. Some people plant the cuttings without any basket. It has been found by experience that the 'basket system' prevents many accidents to which the young shoots are liable. Between October and November the vines must be manured, and tied up to the tree until they are 6 feet high, after which they are able to support themselves. After the third year the plantations are dug up; and twice a-year, at the beginning of the south-west and north-east monsoons, the whole plantation must be hoed, and dried leaves and grasses put in as manure. In 4 years or 5 years the vines begin to bear pepper. In the sixth year they yield a full crop, and continue to do so for 16 years or 20 years, when the erythrina dies, and must be replaced by a new branch and new vines. The pepper vine is liable to be killed by droughts, especially when the north-east monsoon fails. Attacks by grubs and insects are seldom heard of in Malabar; between May and June the vines flower, and by January the fruit is fit for gathering. There is only one harvest in Malabar. The men who collect the crop go up by ladders, and with their fingers twist off the 'amenta.' The fruit is collected in baskets and, after placing them on the ground, rubbed with the feet to separate the berries. Pepper is dried on mats, or on a piece of ground purposely made smooth by washing with cow-dung and clay. For three days they are exposed to the sun, but every night are gathered and taken into the house. It is believed that the drying on mats is by far the best manner. A man can daily pick, according to the abundance of the crops, from 20 lbs. to 30 lbs. The rubbing and drying is generally performed by children and women. It is estimated that the expenses of harvest, curing, &c., cannot possibly exceed one-twelfth of the value of the pepper. The vines on an erythrina tree 6 years to 8 years old will yield from 5 lbs. to 10 lbs. of pepper. Attempts have been made, with complete success, to grow vines against every tree growing in forests where a wet soil is met with."

Present
prices.

584 bags black pepper, small part sold: Lampong, 2½d. to 2¾d.; Singapore, bought in at 2¾d. to 3d. White: Singapore, 4½d.; Penang, 3½d. to 3¾d.; Siam, without reserve, 4¼d.—"London Produce Market," May 18, 1892.

Ginger (Zingiber officinale).

The cultivation of this useful root might also be introduced with advantage into Zanzibar.

"The varieties of ginger which enter into commerce are: Jamaica, Cochin, Brazil, and Africa. The first of these are scraped gingers; the last-named is coated ginger, that is to say, it still retains its epidermis. Jamaica ginger is the sort most esteemed, and next to it is the Cochin. . . . Ginger is received

chiefly from three quarters; the East Indies and West Indies (Cochin and Jamaica), and the West Coast of Africa (Sierra Leone). . . . Several of the West Indian Islands used to grow ginger, especially Barbados, Hayti, and Jamaica, but the cultivation for export is chiefly now confined to Jamaica."

"In Jamaica it is propagated by division of the root, the smaller pieces or protuberances being set, each of which throws up two different stems. The first bears the leaves, and rises sometimes to the height of 3 feet or more, though its usual growth seldom exceeds 16 inches or 18 inches; when this spreads its leaves and grows to full perfection, the second stalk springs up, which is also simple, and furnished only with a few scales below, but at the top is adorned with a roundish squamose flower-spike, and seldom rises above two-thirds of the height of the others. The land having been well cleared and trenched, the ginger is planted about March or April. It rises to its height and flowers about September, and fades again towards the end of the year. When the stalks are wholly withered, the root is thought to be full grown and fit to dry, which is generally done in January to February following. When these are dug up, they are picked and cleaned and scalded gradually in boiling water. After this they are spread out in the sun to dry from day to day until sufficiently aired for packing. The large spreading roots are generally called 'hands' in Jamaica, and will occasionally weigh half a-pound; they are also called 'raas.'"—(Simmond's "Tropical Agriculture.")

Cultivation in Jamaica.

"The plant is cultivated with little trouble in tropical regions, very much in the same manner as potatoes are propagated in England. After the ground has been well cleansed and trenched, the planting commences in March and April. Holes are made, about 4 inches deep and 6 inches asunder, into each of which a small piece of the root is put and then covered over with earth. In a few months the whole ground will be overrun with the plant. The stalks begin to wither in the January or February following, and then the roots are in a fit state to be dug up. A sandy soil, and land not having been previously cultivated, are unfavourable to this crop, but under propitious circumstances ginger yields a very large return.

Ease of cultivation.

"The ginger of commerce is distinguished into black and white, but both are the same root, and their dissimilarity arises only from a difference in management. In preparing the black description, the roots, after having been divested of their fibril stalks, either by means of a knife or by the hand, are washed in pure water, and then put, about 100 lbs. at a time, in a basket. This basket is then placed in a cauldron of water and boiled for a quarter of an hour. After undergoing this process, the ginger is merely dried in the sun, and is then in a fit state for exportation.

"All the dark-coloured external part of the root is scraped off in preparing the white ginger, and the inner part is carefully dried, without having been previously subjected to scalding. The best and soundest roots are always selected for this purpose,

White ginger.

and, therefore, independent of the manner of preparation, the white ginger is superior to the black. It is sold at a much higher price, and is every way preferable.

"Good ginger is distinguishable by being hard and not easily broken, and by having the yellow hue within rather more inclining to green than brown.

Preserves.

"The roots are fibrous when arrived at maturity, but just before they have begun to put out any portion of the stem they are succulent. In this state, or when the young stalks are not more than 5 inches or 6 inches long, the roots are used for making the well-known preserve of ginger. When intended for this purpose, as soon as the young tubers are dug up they are scalded, washed in cold water, and then entirely peeled. This operation requires 3 days or 4 days for its completion, the water being frequently changed during that time. The roots being well cleansed are now placed in jars and covered with a weak syrup, in which they are allowed to remain for two days, at the end of which period this is poured off and replaced by a stronger syrup. This operation is repeated two or three times, at each time the syrup being made stronger, until it becomes of a rich and thick consistency, and the ginger appears bright and nearly transparent. The removed syrups are not wasted; these are made into a pleasant beverage, which is known in the West Indies under the name of 'cool drink.'"—(Porter.)

Present prices.

"A good crop yields four times the weight of the sets planted."

390 packages Cochin ginger, rough ends and small, 2*l.* 0*s.* 6*d.* to 2*l.* 1*s.*; cuttings, 1*l.* 12*s.* 6*d.* 529 barrels Jamaica sold—low, lean—2*l.* 6*s.* to 2*l.* 10*s.*; common to small washed, 2*l.* 14*s.* to 3*l.* 4*s.* 6*d.* 11 packages Japan sold, 1*l.* 9*s.* 6*d.* per cwt.

Fibres.

This, as I have shown at p. 25, forms an important question for Zanzibar; I shall therefore enter into this matter fully.

Pine-apple Fibre (Ananas sativus).

From correspondence placed at my disposal, I observe that Messrs. Gray, Dawes, and Co., of London, in reply to inquiries from Messrs. Smith, Mackenzie, and Co., of Zanzibar, as to the value and possibilities of extracting this fibre, replied, under date of November 20, 1891:—

"We have made inquiries from one of the principal fibre brokers here . . . who does not hold out much prospect of being able to extract the fibre successfully."

Inclosed letters from a gentleman of experience on the subject stated:—

"1. Pine-apple fibre is often made with the same machine as used for the aloe leaf, and is, in my opinion, quite suitable for that purpose.

"2. I should recommend the machine in use at present for cleaning aloe leaves in Mauritius; the necessary machinery would cost from 50*l.* to 60*l.* each machine. I think one could be made in England for 40*l.* similar to those.

"3. I do not know what is the price of pine-apple fibre, never having heard of sufficient being made to get quotations, but should fancy that it must be worth from 60*l.* per ton to 70*l.* per ton.

"4. I am not aware of any one making a fortune by pine-apple fibre in Mauritius, though a great deal of money has been made by aloe fibre."

The above estimate of the value of the fibre is confirmed in the following extract from "Report on the Bahamas," by the Governor, Sir Ambrose Shea, K.C.M.G., and I would especially call attention to the question of decorticating the fibre by crude petroleum.

"The time is now approaching when the machines for separating the fibres from the leaf will acquire practical importance; of those now in use, none seem to meet all requirements. Some of them clean the fibre well; but the process is wasteful, and the correction of this defect is the object to be accomplished. . . . Professor Edison has directed his attention to the matter of decortication, and he hopes he has found an effective method which avoids waste. The treatment is by solution of crude petroleum, and the Government is now in communication with the Professor. . . . The process being enterprised by Professor Edison, embraces other and most valuable interests in this colony. Many thousands of tons of pine-apple leaves are now annually left to waste. The fibre commands a high price, from 60*l.* per ton to 80*l.* per ton, for use in fine textiles. The small quantity now produced comes from China, where it is roughly and expensively prepared for want of a machine sufficiently delicate to extract the under fibre without injury. . . .

"It is understood that the same solution may be used many times, and, if present hopes are realised, the petroleum will be admitted free of the duty now imposed."—("Trinidad Agricultural Record," "Tropical Agriculture," September, 1891.)

The method or process adopted by the Chinese to extract the fibre from the pine-apple leaves is thus described by a Singapore newspaper:—

"The process of extracting and bleaching the fibre is exceedingly simple. The first step is to remove the fleshy or succulent sides of the leaf. A Chinese, astride of a narrow stool, extends on it in front of him a pine-apple leaf, one end of which is kept firm by being placed beneath a small bundle of cloth, on which he sits. He then, with a kind of two-handled plane, made of bamboo, removes the succulent matter. Another man receives the leaves as they are planed, and with his thumb-nail loosens

and gathers the fibre about the middle of the leaf. This enables him by one effort to detach the whole of them from the outer skin. The fibres are next steeped in water for some time, after which they are washed, in order to free them from the matter that still adheres and binds them together. They are now laid out to dry and bleach on rude frames of split bamboo. The process of steeping, washing, and exposing to the sun are repeated for some days, until the fibres are sufficiently bleached. Without further preparation they are sent into town for exportation to China.

"Nearly all the island near Singapore are more or less planted with pine-apples, which, at a rough estimate, cover an area of 2,000 acres. The enormous quantity of leaves that are annually allowed to putrefy on the ground would supply fibre for a large manufactory of pina cloth."

I also annex a further extract from the "Royal Gardens, Kew, Bulletin for 1887":—

"There are several samples of fibre of a wild pine-apple (*Bromelia sylvestris*) from the West Indies and Central America at Kew, but there is no record of their commercial value. A sample, supposed to be from this plant, was lately sent from Trinidad, upon which the brokers reported as follows:—

"Not yet in commercial use, but destined, we think, to a successful future; fine, soft, supple fibre, strong, and good colour, ample length; say 30*l.* per ton and upwards."

Sansevieria fibres.

I shall confine my remarks chiefly to this variety, as abounding in the island, and, as bearing on the subject, will also refer to the fibre industry in Mauritius.

I am greatly indebted to the "Royal Gardens, Kew, Bulletin for 1887," for very full and interesting information on this interesting question.

Sansevieria—
Bowstring
hemp.

"Dr. Roxburgh proposed that the fibres of sansevierias might be called bowstring hemp, because the natives of the Circars make their best bowstrings of them. On the other hand, small samples of fibre from *S. guineensis*, which has appeared in the London market, have been called African bowstring hemp. . . ."

Description.

"This at present is not an article in commercial use, but attention may well be directed to the capabilities of numerous species of sansevieria for producing fibre of great value. Plants of sansevieria, of which there are 10 or 12 species, are very abundant on both the east and west coasts of tropical Africa, which indeed may be looked upon as the headquarters of the genus. . . . The leaves of these plants are more or less succulent, and abound in a very valuable fibre, remarkable alike for fineness, elasticity, and for strength. . . ."

"In the treatment of the leaves of sansevieria by machinery, the great drawback hitherto experienced has been their compar-

tively small size, and the difficulty of cleaning the fibre contained in them in an expeditious and remunerative manner. These circumstances would not obtain in the case of the plant brought into notice by Sir John Kirk. Indeed, for moist tropical climates, as opposed to the dry, hot, and arid districts of Yucatan, where the sisal hemp is grown, this, and *S. longiflora*, if they are really distinct, would be likely to prove of exceptional value as fibre plants.

"It may be mentioned that all species of sansevieria prefer a rich moist soil, and a comparatively humid climate. They are essentially tropical plants, and do not thrive in a temperature less than 60° Fahrenheit. Under such conditions they grow rapidly, and establish themselves by means of large, spreading, fleshy rhizomes, or underground stems. It is true they will grow in comparatively dry districts, and even in soils impregnated with salt, but their growth under such circumstances is very slow, and the leaves are seldom large enough to produce marketable fibre. Suitable localities.

"Plants of sansevieria are already abundant in a wild or semi-cultivated state in most tropical countries. They are capable of being propagated very readily. Usually the underground stem, or rhizome, is divided and planted, but plants may be raised from seeds, or from the leaves, which latter, planted whole, or cut into small pieces, readily take root in most situations. Propagation.

"*Sansevieria guineensis*, Willd.," is one of the oldest and best known specimens.

"It has horny, erect, lanceolate leaves, 3 feet or 4 feet long, 3 inches broad at the middle, narrowed gradually to an acute apex, not distinctly bordered with red, copiously mottled on both surfaces with broad, irregular bands of white. The flowers are in a lax simple spike, which rises to the same height as the leaves, in clusters of three to six, with a whitish perianth, about 2 inches long, of which the six segments are about as long as the cylindrical tube. Description.

"It is a native of Guinea, Central Africa, Abyssinia. On the Zambesi, *S. guineensis* appears to be called 'kosye,' and Sir John Kirk speaks of it as 'yielding a valuable fibre, similar to Manilla hemp.' It is described as 'growing in great abundance in many places, keeping to the shade of woods.' This plant thrives well in Mauritius in damp, marshy places.

"It is widely distributed in the West Indies, and has been grown experimentally for the sake of its fibre at St. Thomas, Jamaica, and Trinidad. Cultivation in West Indies.

"As regards cultural treatment, the following information is taken from notes prepared by the late Director of the Botanical Gardens, Jamaica:—

"In the first instance plants may be put out at 3 feet by 3 feet, which, allowing for roads and paths, would give about 3,000 to the acre. If the soil be kept well broken and moist, these plants, by the extension of root-suckers, will spread in all directions, so that ultimately the whole ground, with the exception of certain paths, which should be kept permanently open, will be covered with plants."

Yield.	"As regards the time which must elapse between planting out and the first yield of leaves suitable for fibre, there would appear to be great difference of opinion. Plants which I saw at St. Thomas at 3 years old were only just ready to cut, and Baron Eggers, who had planted them, and kept them under close observation during the whole of that time, was of the opinion that sansevieria plants could not be depended upon to yield a crop before 3 years or 3½ years. "My opinion coincides with this, but necessarily much must depend upon the nature of the plants when first put out, the character of the soil, the amount of moisture received, as well as on the system of cultivation pursued.
Value.	"In an experimental trial carried on at Jamaica 1,185 lbs. of green leaves of <i>S. guineensis</i> yielded 29 lbs. 10 oz. of dry fibre. This was cleaned by machine. The reports of brokers was as follows :— "(a.) Value 18<i>l.</i> per ton, mixed fibre, partly uncleaned. "(b.) Poorly cleaned, a good deal of mixture in it, not so strong, value about 25<i>l.</i> per ton. "(c.) No good in the state sent. It has a lot of bark in it, and requires more dressing. Both ends are clean, but the centre is dirty. Price, if dressed properly, would be as good as <i>S. zeylanica</i>, viz. 30<i>l.</i> per ton.
Description.	"<i>Sansevieria longiflora</i>, Sims, a native of Equatorial Africa. "The leaves are very like those of <i>S. guineensis</i>, but, as grown with us, they are larger, flatter, not so firm in texture, and not invariably blotched with green. The best character by which they may be known from <i>S. guineensis</i> is the flower, which is 3½ inches to 4 inches long instead of 4 inches. "In 1879 Sir John Kirk forwarded through the Foreign Office a specimen of fibre from the leaf of a species of sansevieria, found growing on the mainland opposite the Island of Zanzibar. The specimen sent was the produce of a single leaf, the length of which was 9 feet. "The report of Messrs. Noble on this specimen was as follows :— "'We have carefully examined the fibre from East Africa, it is worth as a hemp 22<i>l.</i> per ton at the present time (1879).' "Recently Sir John Kirk has been good enough to furnish more detailed information as regards the plant yielding the fibre, which leads us to conclude that it is probably <i>S. longiflora</i>, Sims. In a letter dated December 2, 1886, he mentions :— "'It grows abundantly near Pangani on the mainland opposite the Island of Zanzibar, and in the district between that and Mombasa, and is used by the natives to yield a long and useful fibre, of which I sent specimens to Kew some years ago. "'The plant has flowered with me at Mbweni, in the Island of Zanzibar, but the soil being too dry and sandy it did not succeed very well.' "Several plants of this species are growing in the palm-house at Kew, from which it would appear that it is a very free-growing
Estimated value.	

and robust species. Some leaves from these plants were lately tested for fibre by means of Deane's fibre machine, which yielded at the rate of 1.69 per cent. of clean dry fibre. The Report of Messrs. Ide and Christie on specimens thus prepared, was as follows:—

“A very bright, clean, strong, fibre, and in every way a most desirable commercial article. It should compete with the best sisal hemp for hemp rope-making purposes; value, 30*l.* per ton.

“We know the leaves only, but it is evidently a distinct species. It was sent to Kew by Sir John Kirk in October 1881, as a native of the East Coast of Africa. . . . The leaf is oblong-ovate in shape, and very horny in texture. We have only grown it to a length of 2 feet, with a breadth in the middle of 3 inches. The leaf is dull green, with a distinct brown edge, and is much mottled at the sides. The base is much thicker, and its edges are more incurved than in either of the three other comparatively flat-leaved kinds, and down the back of the lower part of a leaf run about five distinct grooves, a character which distinguishes it readily from *S. guineensis* and *S. longiflora*. *Sansevieria Kirkii*, Baker, Sir S. Description.

“Specimens of fibre prepared from *S. Kirkii* yielded at the rate of 1.69 per cent. by weight of the green leaf. They were described by Messrs. Ide and Christie as follows:— Estimated value.

“Rather stout, but very clean and good colour; the strength fair. Value, 27*l.* per ton.”

“Is a very well-known and well-marked plant. It is a native of Ceylon, India, and Mauritius. *Sansevieria zeylanica*, Willd. Description.

“There are 8 leaves or 10 leaves in a tuft, and they are semi-circular in transverse section, 1 foot or 2 feet long, rounded, deeply channelled down the face, $\frac{3}{8}$ inch or $\frac{1}{2}$ inch thick in the middle, in colour dull green, copiously banded with white, with a distinct red margin. The peduncle and flower-spike are each about a foot long, the flowers being rather smaller than in *S. guineensis*, but quite similar in structure.

“Mr. Horne makes the following note on this plant at Mauritius:— In Mauritius.

“Several species of *sansevieria* are common here in waste lands near the sites of old gardens and by the road sides. They are not so readily nor so cheaply established on land as the aloës vert, but they yield a good fibre, which is used for cordage, &c. It has the reputation of being one of the strongest of fibres. It is known by the name of bowstring hemp and moorva.”

“Dr. Roxburgh describes the plant as common on the jungly, salt soils along the coasts (of India), growing under the bushes, and easily propagated on almost every soil, from the slips which issue in great abundance from the roots, requiring little or no care, and not requiring to be renewed often, if at all, as the plant is perennial. Then when thus cultivated are from 3 feet to 4 feet long. . . . Longest leaves $3\frac{1}{2}$ feet to 4 feet long, narrow, mottled, unarmed, very common, and very easily propagated, either by root, suckers, portions of the leaf, or seed. Easy propagation.

Value.

"Generally, in Ceylon and India, the natives prepare fibre from this plant by retting, or by simple beating and scraping. Full-grown leaves yield at the rate of 7·87 per cent., by weight, of green leaves. Owing to the smallness of the individual leaves they are difficult to clean by machinery, but if it were possible to separate the fibre by a chemical process this plant would become of great commercial value.

"Samples of fibre of *S. zeylanica*, prepared at Jamaica by machinery in 1884, were described as follows by London brokers: '(a) Beautiful fibre, rather heavy and hard, might be whiter; value very uncertain, 20*l.* per ton to 35*l.* per ton. (b) Rather dull in colour and short in growth, fairly well cleaned; value about 30*l.* per ton. (c) Might be whiter; it is almost too good for roping purposes; worth about 30*l.* per ton.'

*Sansevieria
cylindrica*
(Boger).
Description.

"It is spread across South Africa from Zanzibar to Angola.

"It is a most distinct and curious looking plant. The leaves are cylindrical, round in horizontal section, faintly sulcate all round, especially in the young state, obtuse at the end, arching, reaching, when fully developed, a length of 3 feet or 4 feet, and a thickness of about 1 inch. The peduncle is about a foot long; the raceme much longer, with clustered cylindrical flowers just like those of *guineensis* in structure, but only about an inch long.

Cultivation.
Value.

"Grows abundantly; can be easily propagated (Sierra Leone).

"This is the second best fibre amongst the samples sent, and, 'except that it does not appear as strong, it is almost equal to *S. longiflora*; value 28*l.* per ton.'—Broker's Report.

"Fibre Industry in Mauritius.

"A hemp industry was started at the Mauritius to utilise the large number of plants of *Eurcraea gigantea*, Vent., which had spontaneously established themselves on low-lying lands near the sea coast.

"The fibre industry was started at Mauritius about 12 years ago, when the wet or retting was tried. The cut leaves were first passed through the rollers of a sugar-mill and steeped in water for some days. The fibre was then washed and beaten out by hand in running water. This process was soon found unsuitable as the fibre was discoloured and rendered weak; consequently, it obtained comparatively low prices.

"Attention was then directed to extraction by means of gratteuse, or scutching machine. Many machines have since been tried, and it is believed that the purely mechanical difficulties connected with cleaning the fibre have been for the most part overcome.

"The amount of fibre obtained from the leaves of the aloës vert was at the rate of 3 per cent., by weight, of the green leaves. The yield of fibre was at the rate of about 1½ tons per acre. A set of six machines driven by an engine of 8-horse power (nominal) cleaned 1,155 lbs. of fibre per day, which is at the rate of 197 lbs. for each machine per day.

"At one time there were eight hemp or fibre companies formed, with a total capital of 11,82,500 rupees. The total quantity of fibre exported in 1872 was 214 tons, of the value of 4,934*l.*, which would be at the rate of 21*l.* 13*s.* per ton. In 1880 it had increased to 662 tons, which sold in England at 28*l.* per ton to 32*l.* per ton. Some samples in 1882 sold as high as 38*l.* per ton. Since that time low prices have ruled; and this, added to the fact that the cost of production was considerably increased, tended to discourage the industry. It is evident the industry was first started to work off the leaves of self-grown plants which were ready at hand in great abundance. When these leaves were exhausted it remained either to wait until the plants were regrown or to secure supplies of leaves at increased cost from the surrounding country. This latter course being adopted at a time when the market value of fibre was low rendered the enterprise unremunerative.

"In the returns of 1885 we find that Mauritius hemp imported to this country amounted to 255 tons, of the value of 39*l.* per ton. In Messrs. Ide and Christie's Monthly Circular, December, 1886, Mauritius hemp is quoted 'in good demand' at 28*l.* per ton.

"The following extracts, taken from Mr. Horne's report on the agricultural resources of Mauritius, will sufficiently explain the circumstances under which the fibre industry was started, and the causes which have operated to produce the present depression:—

"The industry of extracting fibres from the leaves of the aloës vert, is by no means exhausted. There is ground for believing that it has yet a future in Mauritius. The fall in the price of this fibre in the European markets broke several local companies that were formed for the working of the aloe estates. There was far too much money invested in them for them to pay. On many of the estates self-sown plants abounded in great numbers. It was from the leaves of these that the companies made money and paid large dividends when the price of the fibre was good. The plants had grown naturally on the land, and their presence on it had not cost a cent. In such cases results materially differ from those of reaping crops of regularly laid-out plantations with low prices for the produce. The soil and climate of the localities referred to favour the growth of the plants in such a degree that little expense need be incurred in introducing it to new grounds." (Royal Gardens, Kew, Bulletin 1887.)

Since then the Mauritius fibre industry has revived, and, as well as England, a trade appears to have been established with Australia, though in 1890 fibre was still scarce. In October, 1890, 100 bales of good quality were shipped to Australia for 250 *rs.* per ton. Offers for same rates to England refused.

"The Fibre Plants of Mauritius.

"*Furcraea gigantea*, Vent., is one of the oldest and best known species of *furcraea*, and is now universally spread through-

out tropical America, and also in India, Ceylon, Mauritius, and St. Helena.

Description.

"The trunk below the rosette of leaves reaches a height of 2 feet to 4 feet. The leaves are 4 feet to 7 feet long, 4 inches to 6 inches broad at the middle, unarmed, bright green, and channelled down the face. The scape or terminal flowering stem reaches a height of 20 feet to 30 feet. Like all the other '*Furcraea*,' this species produces copious oblong bulbillæ in place of or in addition to flowers, which, falling, take root and reproduce the plant.

"Although *Furcraea gigantea*, known locally as 'aloës vert,' is the chief fibre plant in Mauritius, there is evidence that *Furcraea cubensis* is also found there, as well as a species of agaves, such as *A. Americana*, and others.

"Boger (*Hortus Mauritius*, page 253), mentions the 'Aloës vert' (*Furcraea gigantea*), as common in 1837, and states:— 'Croît sur la montagne longue dans les endroits vides et les basiliages des habitations dans tous les quartiers de l'île.'

"He does not mention *Furcraea cubensis* at all, so the latter must be a later introduction.

"*Furcraea gigantea* is supposed to have been introduced from South America to Mauritius about 1790. It has evidently found a congenial home there, for without any effort on the part of man it has covered waste lands to such an extent as to lay the foundation of a considerable fibre industry. The leaves are often 8 feet in length, and from 6 inches to 7 inches in breadth. The pulp of the leaves when crushed gives off a strong pungent odour, and hence this species is sometimes called the foetid aloe. The juice is strongly corrosive, and soon acts upon wrought-iron. It is said to produce less effect on cast-iron, while it is practically inoperative on brass and copper.

Suitable localities and soil.

"The plant grows in all soils, and up to an elevation of 1,800 feet above the level of the sea. It has, however, more generally disseminated itself on the lowlands near the coast, and on a few of the abandoned sugar estates that have become too dry for cane cultivation.

Propagation

"The plant produces plantlets in great abundance in this colony (Mr. Horne's report). These plantlets grow viviparously on the parent plant, and adhere to it till they have developed into almost perfectly formed plants. When the young plantlets drop from their parents, they are frequently fitted to stand by themselves. Excepting the want of roots they are perfect. The roots are emitted as soon as the plantlets come into contact with the moist soil, even when they are lying on the surface of the ground.

"It seems, therefore, that to increase this plant rapidly and cheaply over a given area, due advantage should be taken of its peculiarities and the facilities which it naturally affords for propagation and increase."—(Royal Gardens, Kew, Bulletin for 1887.)

Vanilla and Indiarubber.

In conclusion, it only now remains for me to speak of two remaining products stated as above.

The vanilla vines seen growing by me at Mbweni, though in Vanilla. uncongenial soil, were healthy and vigorous, and there are doubtless many suitable localities and situations in Zanzibar well adapted for its successful cultivation; but I consider Pemba Island offers far greater facilities in this respect, and further reference to this product will accordingly be made elsewhere.

Although the specimens of South American rubber trees introduced by Sir John Kirk at Mbweni have taken very kindly to their new surroundings, the Ceará trees especially so, yet I do not consider that this industry would prove remunerative in Zanzibar. And for this reason, to obtain remunerative returns, extensive areas must be put under cultivation, and the Ceará (*Manihot Glaziovii*), which from its hardy nature and capabilities of thriving in stony barren regions might, at first sight, be considered most suitable for cultivation in the less fertile lands on the east and southern coasts of the island, would not answer, as the wild pigs would prove destructive to its cultivation by uprooting the trees to obtain the tubers of the roots (many of them as large as kidney potatoes), and of which they are very fond—in Southern India its cultivation, in many districts, being given up for this reason alone.

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